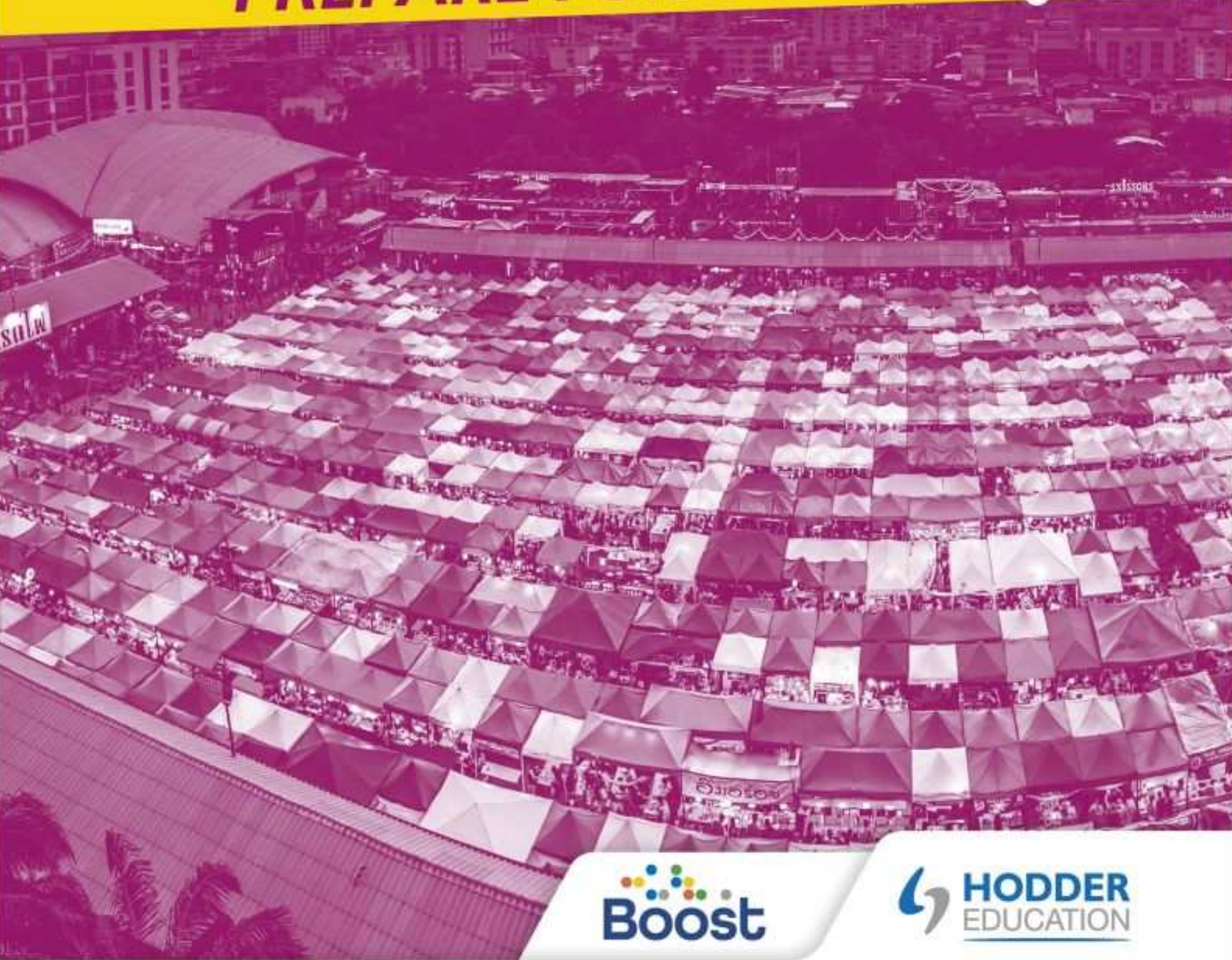


FOR THE
IB DIPLOMA
PROGRAMME

Economics

Paul Hoang

PREPARE FOR SUCCESS ✓




Boost

 **HODDER**
EDUCATION

FOR THE
IB DIPLOMA
PROGRAMME

Economics

Paul Hoang

PREPARE FOR SUCCESS ✓

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Dedication

This book is dedicated to Mr Graham Hollamby, my economics teacher at Southwark College, London. Thank you for inspiring me to become an educator.

Acknowledgements

My heartfelt thanks and love to Kin, Jake, and Luke for always putting up with me.

Thank you to Sean Wray and Tanu Chakraborty for supporting me to produce the IB-endorsed textbook.

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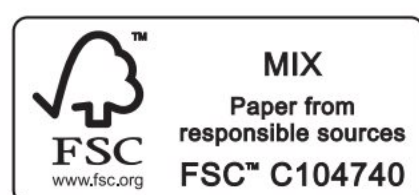
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Introduction

How to use this book

This book will help you plan your revision and work through it in a methodological way. It follows the IB Economics syllabus topic by topic, with revision and exam practice questions to help you check your understanding.

■ Features to help you succeed

TOP TIP!

These tips give advice that will help you boost your final grade.

EXAM PRACTICE QUESTION

Exam practice is given for the type of questions you might get. For the longer essay questions, sample sentences and paragraphs are given to show what examiners are looking for in your essay answers. For easy reference, the exam paper is indicated for each question. Use these questions to consolidate your revision and to practise your exam skills, with suggested answers online.

You can keep track of your revision by ticking off each topic heading in the book. There is also a checklist at the end of the book. Use this checklist to record progress as you revise. Tick each box when you have:

- revised and understood a topic
- used the Exam practice questions and gone online to check your answers.

Use this book as the cornerstone of your revision. Don't hesitate to write in it and personalise your notes. Use a highlighter to identify areas that need further work. You may find it helpful to add your own notes as you work through each topic. Good luck!

Getting to know the exam

Exam paper	Duration	Format	Topics	Total marks
Paper 1	1 hr 15 mins	Essay	All	25
Paper 2	1 hr 45 mins	Data response	All	40
Paper 3 (HL only)	1 hr 15 mins	Policy paper	All	60

At the end of your Economics course, SL students will sit two papers – Paper 1 and Paper 2. Paper 1 is worth 30% of the final marks and Paper 2 40% of the final marks. The other assessed part of the course (30%) is made up of the Internal Assessment (or IA), which is marked by your teacher and externally moderated.

HL students will sit an additional paper – Paper 3, worth 30%. For HL students, Paper 1 is worth 20% of the final marks and Paper 2 also 30% of the final marks. The other assessed part of the course (20%) is the Internal Assessment which is marked by your teacher and externally moderated.

Countdown to the exams

■ 1 week to go

- Aim to fit in at least one more timed practice of entire past papers, comparing your work closely with the mark scheme.
- Examine the checklist carefully to make sure you haven't missed any of the topics.
- Tackle any final problems by getting help from your teacher or talking them over with a friend.

■ 4–8 weeks to go

- Start by looking at the syllabus and make sure you know exactly what you need to revise.
- Look carefully at the checklist in this book and use it to help organise your class notes and to make sure you have covered everything.
- Work out a realistic revision plan that breaks down the material you need to revise into manageable pieces. Each session should be around 25–40 minutes with breaks in between. The plan should include time for some relaxation.
- Read through the relevant sections of this book and refer to the expert tips, common mistakes, keyword definitions, case studies and worked examples.
- Tick off the topics that you feel confident about, and highlight the ones that need further work.
- Look at past exam papers. They are one of the best ways to check knowledge and practise exam skills. They will also help you identify areas that need further work.
- Try different revision methods, for example summary notes, mind maps and flash cards.
- Test your understanding of each topic by working through the Exam practice questions.
- Make notes of any problem areas as you revise, and ask a teacher to go over them in class.

■ The day before the examination

- Look through this book one final time. Look carefully through the information about each exam paper to remind yourself what to expect, including timings and the number of questions to be answered in each different section of the papers.
- Check the time and place of the exams.
- Make sure you have all the equipment you need (e.g. extra pens, pencil and a ruler for diagrams, a watch, tissues and water). If you are an HL student, make sure you have a GDC calculator for Paper 3.
- Allow some time to relax and have an early night so you are rested and ready for the exams. There is a huge opportunity cost if you are not refreshed!

My exams

■ Paper 1

Date:

Time:

Location:

■ Paper 2

Date:

Time:

Location:

■ Paper 3 (HL only)

Date:

Time:

Location:

What is economics?

■ Economics as a social science (AO2)

- Economics is the study of how resources are allocated to satisfy the unlimited needs and wants of individuals, governments and firms in an economy.
- Economics is a social science as it examines the diverse social behaviours and interdependence of individuals and societies in the allocation of scarce resources to meet the endless needs and wants of consumers, employees, firms and governments in order to improve their economic well-being.
- As a social science, economics examines the choices of consumers, producers and governments by using appropriate models and theories.
- The subject examines economic concepts at three levels:
 - *microeconomics* – the study of the behaviour of households and firms (or consumers and producers) in individual markets
 - *macroeconomics* – the study of the economy as a whole and the role of the government
 - *the global economy* – the study of international governments and the growing interdependence between countries through fairer international trade and the international movement of labour and capital.
- **Microeconomics** is concerned with the behaviour of individuals and firms in distinct markets and segments of the economy, rather than the operations of the economy as a whole. It assumes rational economic behaviour of decision makers, which leads to resources being efficiently allocated.
- **Macroeconomics** examines broad economic issues and topics, and the operations of the economy as a whole. It looks at aggregate variables, such as national output, unemployment in the economy and a country's development, and the distribution of income and wealth.
- The study of IB Economics takes place through the lens of six real-world issues (see below).

■ IB Economics and real-world issues (RWI)

As a social science, economics enables IB students to examine models and theories using the following six real-world issues:

- 1 How do consumers and producers make choices in trying to meet their economic objectives?
- 2 When are markets unable to satisfy important economic objectives and does government intervention help?
- 3 Why does economic activity vary over time and why does this matter?
- 4 How do governments manage their economy and how effective are their policies?
- 5 Who are the winners and losers of the integration of the world's economies?
- 6 Why is economic development uneven?

Source: IB Economics Guide, First assessment 2022, page 7

■ Introduction to the nine central concepts (WISE ChoICES)



■ **Figure 1.1** The WISE ChoICES concepts used in IB Economics

- As part of the IB's overarching pedagogy of concept-based learning (CBL), the economics syllabus incorporates the use of nine concepts: scarcity, choice, efficiency, equity, economic well-being, sustainability, change, interdependence and intervention.
- The economics syllabus (first examinations 2022) emphasizes the teaching of economics being conceptually focused and grounded in real-world issues. The concepts are also explicitly examined in the Internal Assessments (for both SL and HL students).
- The central problems of economics are scarcity and choice, which force individuals and societies to face opportunity costs and the challenges of sustainability.

- For example, scarcity and sustainability are essential interlinking concepts. Economic growth has led to clean air becoming an increasingly scarce resource due to traffic congestion and pollution, thus making breathing increasingly difficult for many people.

■ The WISE ChoICES concepts

- **Well-being** – economic well-being is about the level of economic prosperity and quality of life (standards of living) in the economy.
- **Interdependence** – there is growing interaction and reliance on others in order to achieve economic goals because individuals and societies are not self-sufficient in a rapidly changing and integrated world.
- **Scarcity** – resources are scarce (finite or limited in supply) relative to the infinite (unlimited) needs and wants of individuals and societies. Hence, rational choices are made when addressing the basic economic questions of what, how and for whom production should take place.
- **Efficiency** – a quantifiable concept that refers to how well things are done, such as how well resources are allocated in order to generate a socially optimum level of output of goods and services in the economy.
- **Choice** – economics is essentially the study of choice due to finite resources and infinite wants of individuals and societies. Hence, economic agents have to make choices, thus giving rise to opportunity costs.
- **Intervention** – the roles and responsibilities of governments in terms of monitoring and regulating the behaviour of the workings of different markets in the private sector of the economy in order to achieve goals such as economic well-being, efficiency, equity and sustainability.

- **Change** – economic change is inevitable, and the world is continually evolving, so individuals, firms and governments need to be aware of change and thus adapt their thinking and decision-making.
- **Equity** – this concept is about the idea of perceived fairness, although the idea of fairness is subjective, that is, what is deemed to be fair by an individual, firm or government might not be so for others. Although it creates some challenges in terms of interpreting fairness, it also enables economists to explore significant global issues.
- **Sustainability** – this is about intergenerational equity and the growing importance of the global economy in terms of meeting the needs and wants of the current generation without jeopardizing those of future generations. It is about the ways in which economic activity impacts the natural environment and the world's scarce resources.

■ The problem of choice (AO2)

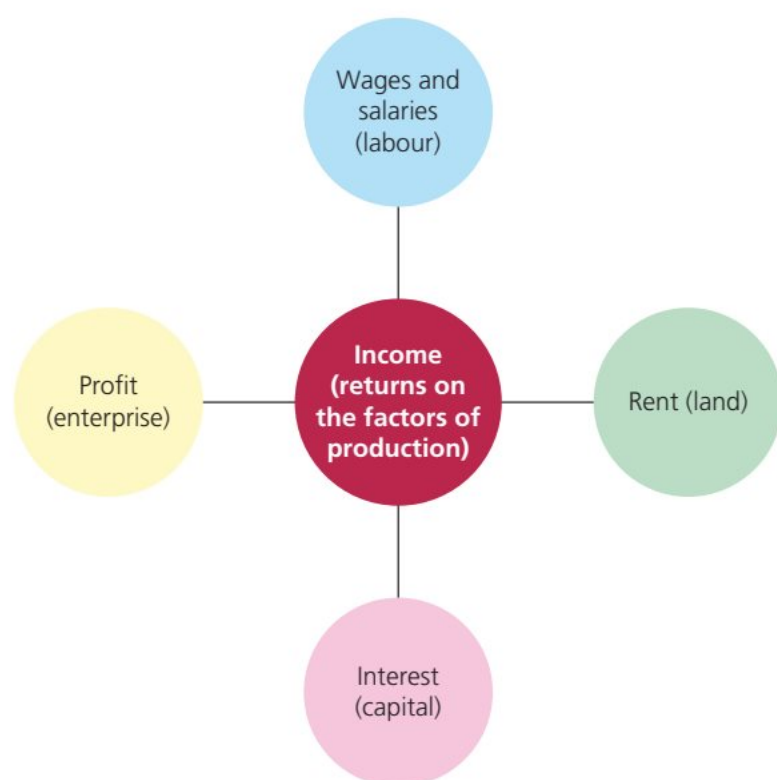
- **Scarcity**, as a concept and a problem, is central to the study of economics. In all economies, resources are finite in supply, so choices and decisions have to be made by individuals, firms and governments about how best to allocate limited resources to satisfy the unlimited needs and wants of society.
- As a result of scarcity, **choices** have to be made. This dilemma forms the **basic economic problem**, which exists in every economy: how best to allocate finite resources in order to satisfy people's infinite needs and desires.
- **Needs** are the necessities people must have in order to survive, such as food, water, shelter, clothing, warmth and sleep.
- **Wants** are human desires, that is, things people would like to have or have more of. These are infinite (unlimited) as it is human nature to want more things.
- However, the resources required to meet society's unlimited wants and needs are finite (limited). Hence, this restricts people's options, so forces them to make economic choices.

■ Factors of production

- **Factors of production** are the four categories of resources that are required to produce any good or service. They comprise land, labour, capital and enterprise.
- **Land** (sometimes referred to as **natural capital**) means the natural resources used in the production process. Examples include crude oil, coal, water, wood, metal ores and agricultural products.
- **Labour** (or **human capital**) refers to the human resources required in the production process. This includes physical human effort and intellectual input from the workforce.
- **Capital** (or **physical capital**) refers to non-natural (manufactured) products used in the production process, such as tools, equipment, machinery, factories and office buildings.
- **Enterprise** (or **entrepreneurship**) refers to the skills, creativity and risk-taking ability that a businessperson requires to successfully combine and manage the other three factors of production. The entrepreneur manages the overall production process as well as having responsibility for the profits or losses of the firm.
- The rewards for the four factors of production are collectively known as **income** (or **factor incomes**). These comprise *rent* (the reward for land), *wages and salaries* (the reward for labour services), *interest* (the reward for capital) and *profit* (the reward for enterprise).

TOP TIP!

The four factors of production can be remembered by using the acronym **CELL**: **C**apital, **E**nterprise, **L**and and **L**abour.



■ **Figure 1.2** Income: the returns on the four factors of production

■ Scarcity

- The main purpose of economic activity is the production of goods and services to satisfy the needs and wants of individuals and societies.
- Resources are scarce (finite or limited in supply) relative to the infinite (unlimited) needs and wants of individuals and societies for goods and services.
- This creates the fundamental (basic) economic problem faced by all countries: scarcity, that is, the shortage of resources in the economy needed to satisfy the needs and wants of all individuals and societies at any moment in time.
- Therefore, rational economic choices have to be made when addressing the basic economic questions of *what*, *how* and *for whom* production should take place.

- **Needs** are the essential goods and services required for human survival, such as nutritional food, clean water, shelter (housing), protection (safety), clothing, and access to healthcare and education.
- **Wants** are the goods and services that are not considered to be necessary for survival but are desires, that is, things people would like to have, such as superior or luxury goods and services.
- **Goods** are tangible (physical) items that can be produced, bought and sold. Examples include clothing, toothpaste, laptops, smartphones and home furniture.
- **Services** are intangible (non-physical) items provided by individuals and firms and paid for by customers. Examples include haircuts, education, concerts, public transportation and online streaming services.
- World Bank figures show that over 3 billion people live on less than \$2.50 per day, and more than 1.3 billion live in extreme poverty (less than \$1.25 a day). These figures suggest that scarcity is a major issue and that the basic human needs of many people are not being met.
- Hence, the study of economics helps us to understand the decisions that households, firms and governments make, given that there are never enough resources to address all the needs and desires of individuals and societies.

■ Opportunity cost

- **Opportunity cost** refers to the costs of an economic decision measured in terms of the best alternative choice foregone, that is, it is the economic cost of choice. As economist Milton Friedman said, '*there's no such thing as a free lunch*' (1975).
- Due to scarcity, there is always an opportunity cost when making an economic decision. For example, the opportunity cost of spending more money on national defence is using the funds for other government priorities such as public housing for low-income families.

- There is always an opportunity cost involved when allocating scarce resources, which helps economists to view the true costs of decision-making.
- Therefore, opportunity cost directly influences the decisions made by consumers, workers, producers and governments. Referring to the basic economic problem, there are competing uses for the economy's scarce resources.
- The production and consumption of economic goods incur an opportunity cost due to the relative scarcity of the resources needed.
- By contrast, **free goods** are products with a natural abundance of supply and do not require any deliberate effort to obtain. The absence of demand means there is no opportunity cost of consumption. Examples of free goods include seawater, air, desert sand, rainwater and sunlight.

■ The basic economic questions

The three **basic economic questions** addressed by an economy are:

- 1 What to produce?** This question is about deciding which goods and services should be provided in the economy at any moment in time. As resources are scarce, there is an opportunity cost in deciding what goods and/or services to produce.
 - 2 How to produce it?** This question is about the methods and processes used to produce the goods and services desired by individuals and societies, such as whether to use labour-intensive or capital-intensive production methods.
 - 3 For whom to produce it?** This question is about which economic agents receive the output of goods and services. Society needs to decide which products are produced only for those who can afford to pay and which products might be subsidized by the government to encourage production and consumption.
- The **private sector** of the economy comprises individuals and firms which contribute to economic activity by producing goods and providing services to meet the needs and requirements of consumers, usually in return for profit.
 - By contrast, the **public sector** refers to governmental departments and organizations that produce or supply certain goods and services for the general public, for example, education and public healthcare services. Its main aim is to provide essential goods and services to improve the economic well-being of society as a whole.

■ Means of answering the economic questions

- **Intervention** is a key theme and concept in economics. It examines the extent to which a government should get involved in addressing the fundamental economic questions of *what*, *how* and *for whom* production should take place.
- Economies can address the basic economic problem of scarcity and opportunity costs by using either market forces and/or government intervention.
- The degree of government intervention in economic activity is determined by the economic system used in the country (see Figure 1.3).
- Debates exist in economics regarding the potential conflicts between economic growth and equity as well as between free markets and government intervention.

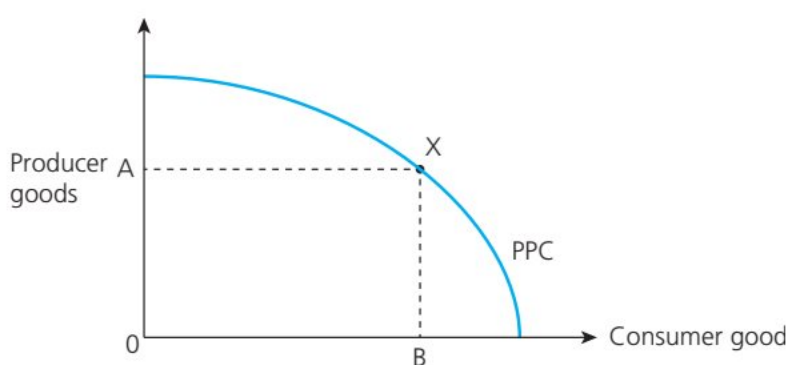


■ **Figure 1.3** The three economic systems

The three economic systems are:

- 1 **Free market economy** – This economic system relies on the market forces of demand and supply to allocate scarce resources via the private sector of the economy. According to the Heritage Foundation, there is a high correlation between a country's level of economic freedom and standards of living in the country, although income is not equally distributed within the economy.
- 2 **Planned economy** – In this economic system, the government (or public sector) allocates scarce resources.
- 3 **Mixed economy** – In this economic system, there is a combination of the planned and free market economic systems. The government intervenes in economic activity where appropriate in order to correct perceived market imperfections and market failures.

■ The production possibility curve (PPC) model (AO2, AO4)



■ **Figure 1.4** The production possibility curve (PPC)

- The **production possibility curve** is a diagrammatic representation of the maximum combination of two products that an economy can produce at any point in time, when all resources are used efficiently. Hence, it shows the productive capacity of the economy (see Figure 1.4).
- Any point inside the PPC suggests that not all resources are being used efficiently to achieve the potential output of the economy. Any point beyond the PPC is not currently attainable with the economy's resources and state of technology.

- The PPC slopes downwards from left to right, showing that the economy must forgo a certain quantity of one product in order to gain more quantity of the other product.
- In Figure 1.4, the economy operates at point X, so produces OA units of producer goods and OB units of consumer goods.

■ Assumptions of the model

There are four main assumptions behind the PPC model:

- *Fixed production possibilities* – It is assumed the economy produces various combinations of only two products, such as producer goods or consumer goods.
- *Scarcity* – There is a limited (fixed) amount of resources in the economy at any moment in time. As there is a trade-off between the two products in a PPC model, this shows scarcity in the economy.
- *Constant state of technology* – Production techniques and technologies are assumed to be held constant at any point in time. This makes it possible to analyse the consequences of changes in output without the state of technology changing.
- *Efficiency* – All resources are assumed to be fully utilized in an efficient way, that is, there is no unemployment of resources. The efficient use of resources means that the maximum output of products is obtained from the economy's limited resources.

■ Increasing versus constant opportunity cost

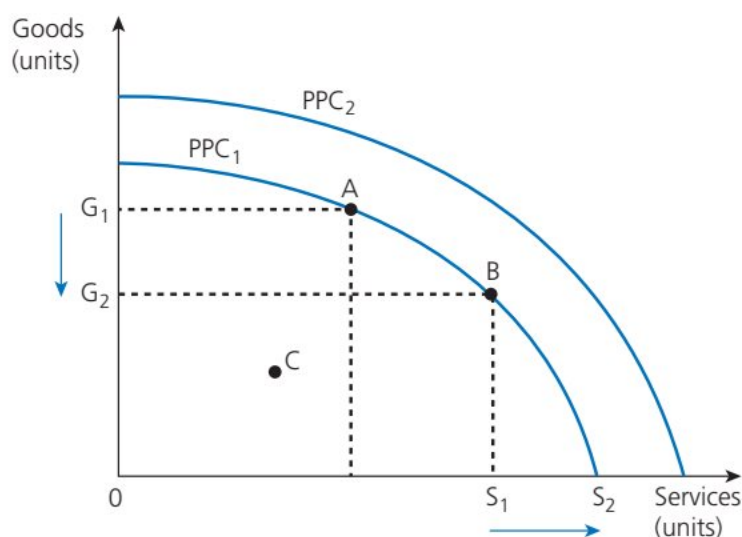
- The gradient of the PPC shows the opportunity cost between the two products shown in the model.
- The PPC is typically drawn concave to the origin, due to the notion of increasing opportunity costs. As an economy has more of a particular product (such as

consumer goods), it sacrifices more of the other product (such as capital goods), so the opportunity cost increases.

- If the production possibility curve is shown as a linear line, it means that there is a constant opportunity cost in the output of the two products in question. While this is less realistic than a PPC that is concave to the origin, it simplifies the idea behind the model of the opportunity cost of production.

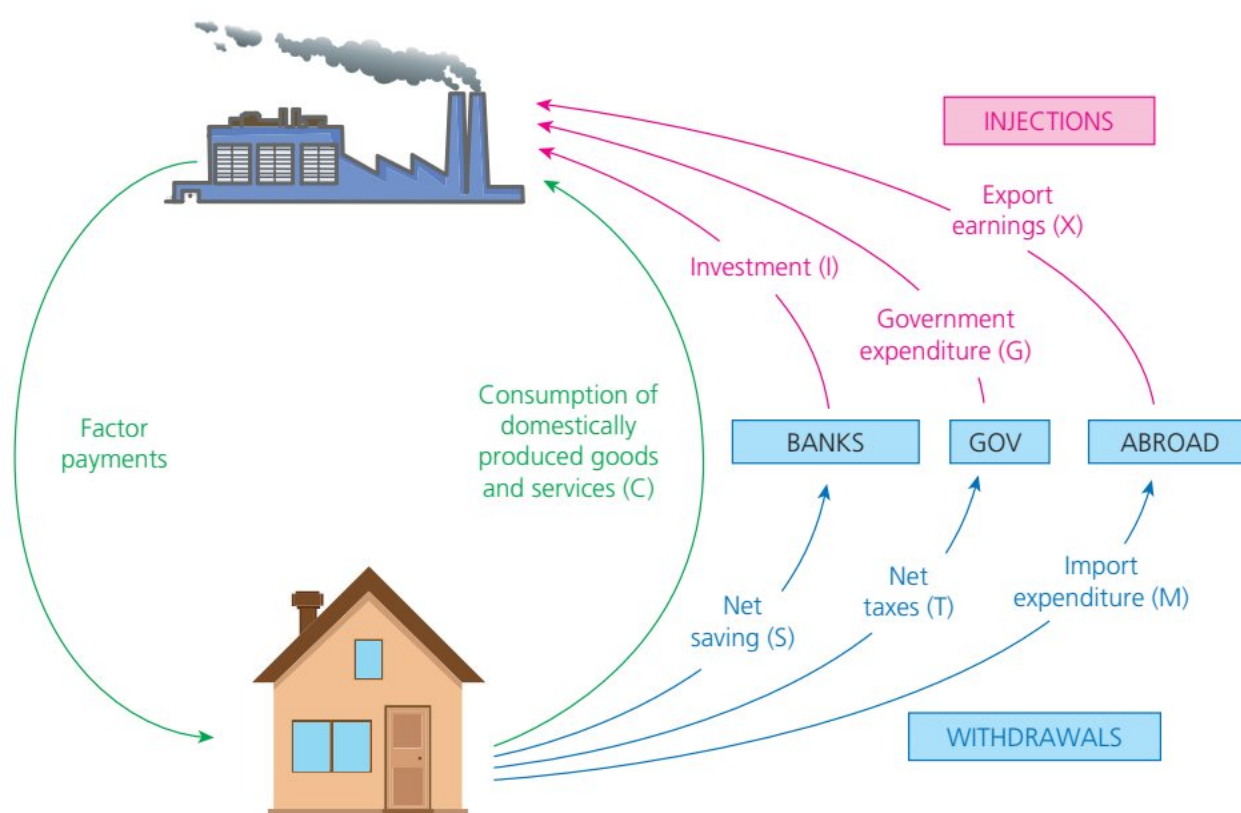
■ Features of the model

The IB Economics syllabus states the following distinct but interrelated features of the PPC model: opportunity cost, scarcity, choice, unemployment of resources, efficiency, actual growth and growth in production possibilities. These features are outlined in Figure 1.5.



■ **Figure 1.5** Features of the PPC model

- **Opportunity cost** – The PPC shows the opportunity cost of one product for another. If the economy increases the output of services from S_1 to S_2 , the amount of goods produced will have to fall from G_1 to G_2 as the economy moves from Point A to Point B.
 - **Scarcity** – As the economy has a limited amount of land, labour and capital, this limits how much the economy can produce at any point in time. Scarcity is shown by the maximum output of goods and services, as illustrated by the PPC.
 - **Choice** – The PPC illustrates the issue and problem of choice. Choosing to produce more services (Point A), for example, means fewer goods can be produced by the economy (Point A).
 - **Unemployment of resources** – For a country to be operating on its PPC, production must be efficient and all resources must be used, that is, there is no unemployment. Unemployment of resources is represented by all production possibilities within the PPC, such as Point C.
 - **Efficiency** – The PPC model shows it is not possible to reallocate resources in order to make one party better off without making others worse off. For example, devoting more resources to produce goods means fewer resources are available to produce services. Hence, all points on a PPC show efficiency.
 - **Actual growth and growth in production possibilities** – The PPC shifts outwards as a result of an increase in the productive capacity of the economy. This is the result of an increase in the quantity and/or quality of the economy's productive resources. Actual growth is shown by moving towards the PPC, such as moving from Point C to Point A or Point B. Growth in production possibilities is shown by an outward shift of the PPC, from PPC_1 to PPC_2 .
- ### ■ Modelling the economy (AO2, AO4)
- ### ■ The circular flow of income model
- The **circular flow of income** model is used to explain how economic activity and national income are determined based on the interactions of various economic decision makers (see Figure 1.6).



■ **Figure 1.6** The circular flow of income model

- In a **closed economy** of the circular flow on income model, households supply factors of production to domestic firms in order to produce goods and services. In return, they receive factor payments (in the form of rent, wages, interest and profit). With the factor incomes, households spend their money on goods and services produced by firms.
- In an **open economy**, part of the circular flow of income comprising domestic and foreign economic decision makers, the model considers international trade (exports and imports).

■ Interdependence between economic decision makers

The main **economic decision makers** in an economy, as depicted in the circular flow of income model, are:

- *Households* – This refers to individual consumers who provide labour services to firms, in return for factor payments.
- *Firms* – This refers to businesses that use factors of production to generate or supply goods and services. Economic theory assumes that firms aim to maximize profit.
- *The government* – It is assumed that the government exists to maximize social welfare for society as a whole. The **government** taxes households and firms to raise tax revenues to fund government spending.

■ Leakages and injections

- The open economy in the circular flow of income model includes both **leakages** and **injections**. Leakages (or **withdrawals**) remove money from the economy, thereby preventing the economy from experiencing inflationary pressures. By contrast, injections add money to the circular flow in order to stimulate economic activity.
- Withdrawals (W) comprise savings (S), taxation (T) and import expenditure (M), that is, $W = S + T + M$.

- Injections (J) comprise investment expenditure (I), government spending (G) and export earnings (X), that is, $J = I + G + X$.
- Therefore, national income equilibrium exists if $S + T + M = I + G + X$.
- The circular flow of income will change based on the sum of all withdrawals and all injections at any moment in time. If $W > J$ then economic activity declines, whereas economic activity increases if $J > W$.

PAPER 2 EXAM PRACTICE QUESTION 1.1

Explain why economics is considered as a social science.

[4 marks]

PAPER 2 EXAM PRACTICE QUESTION 1.2

Distinguish between microeconomics and macroeconomics.

[4 marks]

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 1.3

Describe the meaning of equity in economics.

[2 marks]

PAPER 3 EXAM PRACTICE QUESTION 1.4

A firm can produce either 10,000 units of Product X plus 5,000 units of Product Y or 8,000 units of Product X plus 6,000 units of Product Y. Describe the opportunity cost of producing an extra unit of Product Y.

[2 marks]

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 1.5

Consider the table below, which shows the maximum combination of strawberries and potatoes in the economy:

Strawberries ('000 kg)	Potatoes ('000 kg)
27,000	81,000
30,000	72,000
33,000	63,000
36,000	54,000

Calculate the opportunity cost of one unit of strawberries in terms of units of potatoes.

[2 marks]

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 1.6

A farmer has land on which carrots and corn are grown. The production possibilities are shown in the table below:

Carrots ('000 kg)	Corn ('000 kg)
2	4
6	10
10	16
14	20

Calculate the farmer's opportunity cost of producing 1 kilogram of carrots in terms of kilograms of corn.

[2 marks]

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 1.7

Distinguish between growth in production possibilities and actual growth.

[2 marks]

Chapter summary

- Economics is an academic social science that examines how resource allocation can best meet the needs and wants of individuals and societies.
- The basic economic problem refers to the issue of how best to allocate an economy's scarce resources in order to satisfy the unlimited needs and wants of individuals, firms and governments.
- Factors of production are the four categories of resources that are required to produce any good or service, namely land, labour, capital and enterprise.
- Scarcity means resources are finite (limited in supply) relative to the unlimited needs and wants of individuals and societies.
- Free goods are products with a natural abundance of supply and do not require any deliberate effort to obtain. Hence, there is no opportunity cost of consuming free goods.
- An economic system refers to the way in which an economy is organized and run, including alternative views on how resources are best allocated.
- The production possibility curve (PPC) is a diagrammatic representation of the maximum combination of two products that a country can produce, given the efficient use of all its resources, per time period.
- The circular flow of income is an economic model used to explain how economic activity and national income are determined.

2

How do economists approach the world?

■ Economic methodology (AO2)

- **Economic methodology** refers to the study of the processes, practices and principles of economics as a social science. It includes the models, theories and assumptions underlying economic reasoning and thought.
- It is concerned with three key aspects: how economics functions, how it could function and how it should function.
- Economic methodology considers two main dimensions of how economists approach the world, as proposed by British philosopher and economist John Neville Keynes (1852–1949):
 - **Positive economics** – the study of *what is* and the ways in which the economy actually works.
 - **Normative economics** – the study of *what should be* and the ways in which the economy ought to work.

■ The role of positive economics (AO2)

- **Positive economics** is the study of economics that is objective or provable, that is, factual statements about the economy or statements of 'what is'.
- It relies on reasoning, logic and empirical evidence.
- Positive economics can be verified or refuted by referring to facts, evidence and/or further investigation.

■ Examples of positive economic statements

- Scarcity is the underpinning cause of the basic economic problem.
- Workers are incentivized by factor incomes (payments).
- Consumers will tend to demand more of a product if the price is reduced.
- Higher unemployment in the economy will cause standards of living to fall.
- A tax on tobacco products will reduce the demand for cigarettes.
- Greater access to education and healthcare will help to increase life expectancy.

TOP TIP!

It is incorrect to assume that positive economic statements are always correct. For example, 'globalization creates more winners than losers' or 'the imposition of a minimum wage will cause unemployment' are both positive statements but can be tested in order to validate or refute the statements.

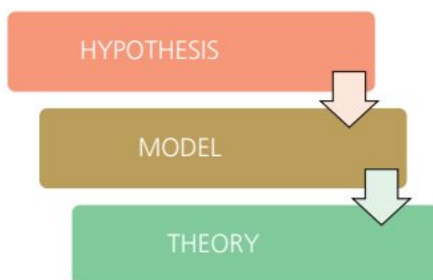
■ The use of logic

- **Logic** refers to rationality and reasoning to explain how the economy works and policymaking, rather than relying on feelings, emotions or beliefs. It is integral to the study of positive economics.
- It is logical to assume that people will make rational choices based on the information available to them in order to maximize their economic well-being.

- Logic involves using facts and figures in a considered and objective way to help explain economic phenomena in relation to an economic hypothesis, model or theory.
- American economist Milton Friedman (1912–2006) argued that economics should be free of subjectivism and value judgements for it to be respected as a social science. He believed that logic, objectivity and reasoning should inform normative economics. This is because, he argued, value judgements distort policy decisions as opinions are not based on facts about the economic consequences of different policies.

■ The use of hypotheses, models and theories

- A **hypothesis** is an assumption, notion or educated guess made before research has been conducted (such as the claim that ‘men, on average, are paid more than women’). This enables economists to test the hypothesis in order to accept or refute the claim, and to gain a clearer understanding of the issue.
- A **model** occurs when a hypothesis has been repeatedly tested and proven. Models are accepted by economists only once they have been thoroughly tested and can be used to explain the real world, using relevant empirical evidence and data.



■ **Figure 2.1** The relationship between hypotheses, models and theories

- A **theory** is a broad generalization used to explain situations or scenarios already supported by economic evidence and data from economic models. For example, the theory of demand (see Chapter 3) takes a broad view that as the price of a product falls, the quantity demanded will rise. This theory has been repeatedly tested so is widely accepted and used to make predictions about economic behaviour.
- Like any economic hypothesis, an economic model or theory can also be refuted after rigorous testing or when new evidence contradicts or invalidates the existing model or theory.

- Hypotheses, models and theories are used in economics to explain relationships as well as cause and effect interactions.

■ The ceteris paribus assumption

- **Ceteris paribus** is a Latin phrase meaning ‘all other factors remaining constant’ or ‘all else unchanged’. As economics is not an exact science, the ceteris paribus condition allows economists to examine what is most likely to occur if one variable changes while holding all other factors constant.
- The ceteris paribus assumption enables economists to simplify and explain possible causes and effects, even if these hypotheses have to be made.
- The assumption is vital for the formulation of economic hypotheses, theories and models.

■ Empirical evidence

- **Empirical evidence** refers to data and information acquired by investigations, observations or experimentation of certain behaviours and patterns. It is an important aspect of positive economics because it involves looking at facts and evidence in order to make logical and rational forecasts and projections.
- Positive economic statements can then be accepted or rejected based on empirical evidence.
- However, economics is not an exact science so controlled experiments are not viable to collect conclusive empirical evidence to prove or refute a hypothesis. In reality, economic behaviour is influenced by value judgements (at least to some extent) so this makes it more challenging to justify the acceptance or rejection of a hypothesis.

■ Refutation

- **Refutation** is the means of a statement or theory being proven to be wrong or false by the empirical evidence.
- Positive economic statements can be verified (and accepted) or refuted (and rejected) by referring to facts, data and empirical evidence. In some cases, further investigation may be required.
- As an evolving social science, positive statements in economics are accepted or refuted by using ongoing research, data and empirical evidence.

■ The role of normative economics

- **Normative economics** considers people's varying opinions and beliefs about what should be (or what ought to be). They are statements of 'what should be' (or 'what ought to be').
- Normative economic statements or claims are subjective rather than objective (unbiased), expressing a value judgement about what is perceived to be desirable or undesirable about the economy.
- Such statements cannot be verified or refuted by referring to facts, evidence or further investigation.
- While it would seem logical and rational for economists to rely on evidence-based research to determine economic policies, most decisions are still influenced by value judgements (the opinions and beliefs of policymakers), at least to some extent.

■ Examples of normative economic statements

- The government should increase the tax rate of the economy's highest income earners in order to redistribute income and wealth.
- Professional male soccer (football) players are paid way too much money.
- The country should impose higher tariffs (import taxes) on foreign goods entering the country.
- The government should spend more money on education and healthcare services, and far less on national defence.
- The economy ought to provide adequate housing for each and every citizen.
- The government should ensure that all children study English, Mathematics and Science up to the age of 18.

■ Value judgements in policymaking

- **Value judgements** are the views and beliefs of individuals and societies about what is deemed to be right or wrong, or good or bad. These judgements are often influenced by morals, ethics and cultural values and attitudes.
- Value judgements can play a crucial role in policymaking especially because economic well-being is concerned with the perceived desirability or undesirability of different economic policies.
- Individuals, households, firms and governments make different choices based on their different tastes, preferences, values and beliefs. The existence of value judgements means that economics is not purely objective or free from subjectivity.

■ The meaning of equity and equality

- The concept of **equity** is about economic fairness with regards to the distribution of resources. It covers matters such as taxation policies and welfare payment schemes.
- Equity is not the same as equality; for example, most economists regard it equitable for people who are more qualified, skilled and experienced to be rewarded higher incomes.
- Equity is used to justify, from an economic perspective, to rationalize the allocation of scarce resources.
- Critics of free market economics raise concerns about the subjective nature of what is 'fair' and the subsequent disparities in income and wealth.
- By contrast, **equality** is about social fairness and collectivism from the perspective of a planned economic system, where individuals are viewed to have equal recognition and value.
- Inequalities in economic opportunities and the distribution of income and wealth are major concerns for many economies. For example, low-income families may be denied access to high-quality education, healthcare and job opportunities.
- When considered together, equity and equality provide policymakers with a clearer understanding of the impact of formulating and executing different policy decisions.

■ Economic thought (AO2)

- This IB Economics syllabus requires you to understand different economic schools of thought from the eighteenth century to the twenty-first century.
- Economic thought refers to the origins of economic ideas, that is, a historical account of the different economic ideas, beliefs and principles that dominate the study of economics as a social science.
- The hypotheses, models and theories used in the study of economics have changed considerably throughout history because economic ideas, beliefs and principles adapt to changes in the real world.
- Having a historical context of economics can help economists to explain and gain a better understanding of how economists approach the world.

■ Eighteenth century

- In *An Inquiry into the Nature and Causes of the Wealth of Nations* (1776), Scottish economist and philosopher Adam Smith laid the foundations of free market (or laissez-faire) economics.
- Adam Smith (1723–90) believed in a *laissez-faire* approach to economics, that is, leaving things to their own devices, without direct government interference.
- He argued that rational economic behaviour (people acting in their best self-interest) and competition are fundamental to economic well-being and prosperity.
- He used the idea of the *invisible hand* as a metaphor to describe how each person's rational behaviour and decision-making ends up benefiting society as a whole as they are incentivized to act in their best self-interest.
- Smith refuted the idea of *mercantilism* that had dominated economics throughout the sixteenth to eighteenth centuries. Mercantilism was based on the idea that a country's wealth and economic power were limited to its finite resources, so there

TOP TIP!

Students often use the terms *equity* and *equality* interchangeably. This is incorrect. In a nutshell, the difference between these concepts is: equity is about economic fairness whereas equality is about social fairness.

was a key role for the government in tightly controlling all aspects of economic activity. Smith argued this hindered economic growth and development.

- Adam Smith is regarded by most people as the originator of classical economic theory, which dominated the nineteenth century.

■ Nineteenth century

- **Classical economics** is a broad term that refers to economic theories and models focused on the self-regulation of markets to allocate resources in an efficient way. Economics in the nineteenth century was dominated by classical microeconomic concept of utility theory, the concept of the margin and classical macroeconomics (Say's Law).
- Classical economics is the opposite of a 'command and control' economic philosophy, with minimal government intervention in economic activity, favouring competitive markets and international trade.
- An important development of classical economics was the concept of **utility theory**. Utility is the degree of satisfaction gained from the consumption or use of a good or service. British economist Alfred Marshall (1842–1924) believed that rational consumers aim to maximize personal satisfaction (utility maximization) from the purchase and use of a product. It is assumed that utility can be quantified to illustrate the varying degree of satisfaction from consumption.
- Classical microeconomics also developed the notion of **marginal utility**, which refers to the benefit or satisfaction gained from consuming an additional unit of a product. The **law of diminishing marginal utility** states that as the level of consumption of a product increases, the marginal utility (additional satisfaction) derived from the consumption of each extra unit eventually declines.
- Classical macroeconomics includes Say's Law. French classical economist Jean-Baptiste Say (1767–1832) advocated the liberalization of markets in favour of competition and free international trade. **Say's Law** states that the ability to purchase a product depends on the ability to produce or supply, thereby generating income. Essentially, this means that supply can create its own demand. Say's Law implies that national output is the key to economic growth and prosperity, so nations should focus on production rather than consumption.
- German philosopher and sociologist Karl Marx (1818–83) challenged the classical economic school of thought. His critique of classical economics saw an alternative perspective, by focusing on the surplus value created by a capitalist (free market) economic system. **Marxism** is an approach to macroeconomic policy that focuses on meeting the needs and values of the masses, rather than for the privilege of a minority of capitalists. Marx's ideas thrived following the spread of communism throughout Eastern Europe during the first half of the twentieth century.

■ Twentieth century

- Following the Great Depression of 1929–39 and the Second World War, classical economics declined in popularity in favour of the Keynesian revolution. The **Keynesian school of economic thought** is named after British economist John Maynard Keynes (1883–1946), who advocated the use of interventionist macroeconomic policies to get the world's economies out of a global depression. Keynes had refuted Say's Law. He argued that the Great Depression created over-production in the economy and the subsequent deficiency of demand.

- Keynesian economics promotes the notion of increasing government expenditure and lowering taxes in order to stimulate aggregate demand in the economy. Essentially, he argued that governments can spend their way out of a recession.
- Keynes was overly critical of the classical economic argument that incentives of market forces or the invisible hand would be enough to help any economy recover from an economic depression and the macroeconomic problems of long-term unemployment. His ideas resurfaced in the twenty-first century during the global financial crisis of 2008 and again during the coronavirus pandemic (COVID-19), with fiscal stimulus programmes used by all governments around the world to support their economies.
- While Marx criticized capitalism, Keynes sought the opportunity for the government to justify its existence and its role in managing the economy to deal with the fluctuations in the business cycle (the sequence of booms and slumps).
- **Monetarism** is mainly associated with 1976 Nobel Prize-winning American economist Milton Friedman (1912–2006). It gained prominence during the 1970s when interest rate hikes were used to help combat inflationary pressures. Monetarists argue that poor management of the economy's money supply is the primary cause of macroeconomic problems, like inflation.
- The monetarist revolution refuted Keynes' economic ideas in the latter part of the twentieth century. Monetarists believe that the use of monetary policy helps to maintain low inflation, thereby enabling a country to achieve long-run economic growth and sustained economic development.
- During the 1980s, the **new classical counter revolution** (NCCR) came to the forefront. This economic school of thought favours supply-side macroeconomic policies (such as privatization of state-owned enterprises and deregulation of markets in order to stimulate competition) as well as the withdrawal of government regulation of markets. Supply-side economists of the twentieth century were influenced by Say's Law.

■ Twenty-first century

- The twenty-first century has seen economics being increasingly influenced by other disciplines such as psychology and marketing, paving the way for the growing role of **behavioural economics** and the impacts on policymaking. This school of thought refutes classical economic thought that consumers are rational decision makers, emphasizing instead the role of emotions as well as social and cultural factors that influence choice and decision-making. Behavioural economists argue this makes economics more accurate and realistic as it considers how humans decide how to act.
- American economist Richard Thaler, winner of the Nobel Memorial Prize in Economic Sciences in 2017 for his work on nudge theory, examined how indirect suggestions and positive reinforcements (nudges) can influence people to act in a desired way. Behavioural economics provides a framework for firms and decision makers to create opportunities to nudge people towards choices that are more sensible (be they wiser, safer and/or healthier alternatives).
- Behavioural economists argue that people do not always behave in a rational way that is in their best interest. For example, people do not always have the time, information or other resources needed to make a logical choice that optimizes their utility. Hence, behavioural economics allows for irrational consumer behaviour and tries to better understand why people might behave in such a way.



■ **Figure 2.2** The circular economy

- The growing importance of globalization and the push for environmental protection of the planet have also led to increasing awareness of the interdependencies that exist between the economy, society and the environment. This has also steered economics in the direction of having an understanding and appreciation of **sustainability** and the **circular economy**.
- **Sustainability** is the ability of an economy to conduct economic activity indefinitely. This means whatever the economy does today does not compromise the opportunities for future generations. Overfishing and deforestation, for example, are unsustainable and a threat to economic development.
- A **circular economy** describes a system in which raw materials, components and other resources are used sustainably to generate goods and services. The model is underpinned by a transition to green and renewable energy sources so that consumption and resource usage enable recycling, reuse and regeneration in the manufacturing cycle.

PAPER 2 EXAM PRACTICE QUESTION 2.1

Explain how economists might go about testing the claim that 'as the price of a strawberry falls, its quantity demanded will increase'.

[4 marks]

PAPER 1 EXAM PRACTICE QUESTION 2.2

Explain the importance of the ceteris paribus assumption for economic models and theories.

[10 marks]

PAPER 1 EXAM PRACTICE QUESTION 2.3

Explain the significance of normative and positive economics in the academic study of economics as a social science.

[10 marks]

PAPER 2 EXAM PRACTICE QUESTION 2.4

Outline **two** reasons why consumers might make irrational economic decisions. [4 marks]

Chapter summary

- Economic methodology is the study of the processes, practices and principles of economics. It includes the models, theories and assumptions underlying the roles of positive and normative economics.
- Positive economics is the study of economics that is provable, that is, factual statements of 'what is' rather than 'what ought to be'. It covers the use of logic, the use of hypotheses, models and theories, the ceteris paribus assumption, empirical evidence and refutation.
- Logic is about rationality and reasoning, which are used to explain economic phenomena and policymaking.
- A hypothesis is an assumption or notion made before research has been conducted. It enables economists to test the premise to gain a clearer understanding of the issue. A model occurs when a hypothesis has been repeatedly tested and proven to help explain the real world. A theory is a broad generalization used to explain situations already supported by economic evidence and data from economic models.

- Ceteris paribus is a Latin phrase meaning 'all other factors remaining constant' or 'all else unchanged'. It is used to explain causes and effects of economic variables.
- Empirical evidence refers to data and information acquired by observation or experimentation of certain behaviours and patterns in order to make logical and realistic projections for the future.
- Refutation is the means of a statement or theory being proven to be wrong or false by the use of empirical evidence.
- Normative economics is based on opinions and beliefs. It involves value judgements in policymaking and interpreting the meaning of equity and equality.
- Value judgements are the beliefs of individuals and societies about what is regarded as right or wrong.
- Equity is the concept of economic fairness in the distribution of resources.
- Equality is the concept of social fairness and collectivism, focusing on people having the same recognition and opportunities.
- Economic thought refers to the origins of economic ideas. The IB syllabus looks at a historical account of the different economic ideas, beliefs and principles that have governed economics as a social science since the eighteenth century.
- Eighteenth-century economics was dominated by the thoughts of Adam Smith and laissez-faire economics. He argued that rational economic behaviour and competition are vital to economic well-being. He used the idea of the *invisible hand* to describe how each decision maker's rational behaviour benefits society as a whole.
- Nineteenth-century economics was dominated by classical economics, which focused on the self-regulation of markets to allocate resources efficiently. It favours competitive markets and international trade over command and control of the economy. It includes the idea that rational consumers aim to maximize personal satisfaction (utility maximization). It also includes Say's Law, which states that the ability to purchase a product depends on the ability to produce or supply it. Say's Law implies that national output is vital for economic growth and prosperity. Marxism is a critique of classical economics, with its emphasis on meeting the needs and values of the masses, not just the privileges of minority capitalists.
- Twentieth-century economics saw the rise of the Keynesian revolution, which focused on the use of interventionist macroeconomic policies, namely by increasing government expenditure and/or lowering taxes to stimulate spending in the economy. The latter part of the century saw the rise of monetarism (the new classical counter revolution), which focused on managing the economy's money supply to avoid macroeconomic problems such as inflation.
- The twenty-first century has seen the growing role of behavioural economics with its links to psychology as well as the increasing awareness of the interdependencies that exist between the economy, society and the environment. This has caused many economies to move towards a circular economy model.

■ The law of demand (AO2)

- **Demand** is the quantity of a good or service that customers are *willing* and *able* to buy at a given price, in a particular period of time.
- It refers to the *willingness* and *ability* of consumers to pay a certain price in a market to obtain a particular good or service.
- **Price** is the amount of money consumers pay to purchase a good or service.
- The **law of demand** states that the quantity demanded for a good or service falls as its price rises, *ceteris paribus*. Likewise, the quantity demanded rises as prices fall, *ceteris paribus*. This can be illustrated using a demand curve (see Figure 3.1).

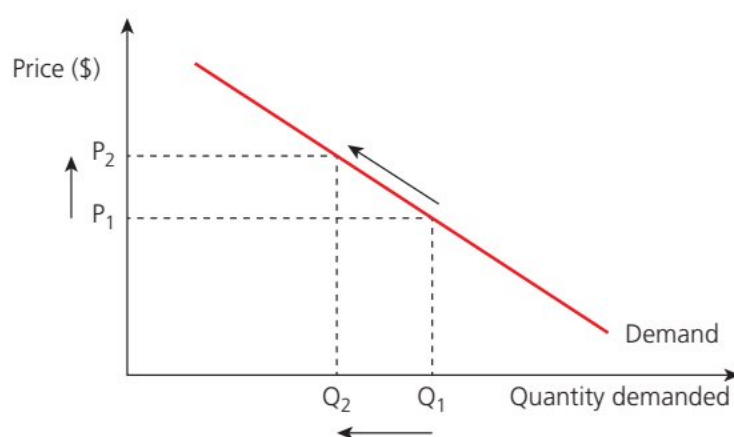
■ Assumptions underlying the law of demand (HL only)

There are three causes of the negative relationship between price and quantity demanded:

- The **income effect** – as the price of a product falls, the real income of consumers rises, *ceteris paribus*. This means consumers are able to buy more products at lower prices.
- The **substitution effect** – as the price of a good or service falls, more consumers are able to pay, so they are more likely to buy the product, that is, substitute it for alternative products that consumers might have previously bought.
- The **law of diminishing marginal utility** – as people consume more of a particular good or service, the utility (satisfaction) gained from the marginal unit of consumption declines. Hence, consumers will purchase more of the same product only at a lower price.

■ Demand curve (AO4)

- The **demand curve** shows the inverse relationship between price (shown on the y-axis) and quantity demanded of a product (shown on the x-axis), as illustrated in Figure 3.1. It shows how much of a product is demanded at different prices.
- The amount of a good or service demanded at each price level is called the **quantity demanded**.



As the price increases from P_1 to P_2 , the quantity demanded contracts from Q_1 to Q_2 as the willingness and/or ability to pay will fall.

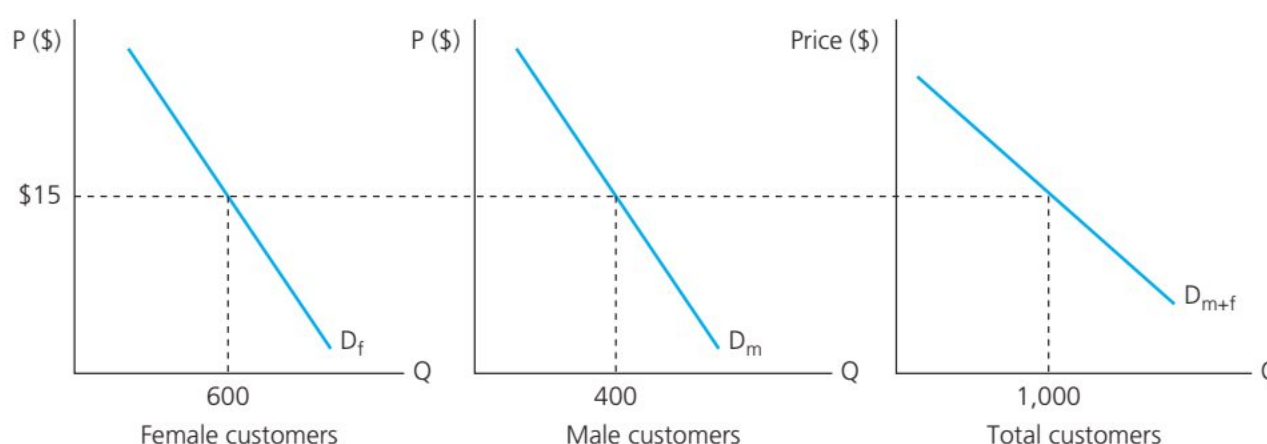
■ Figure 3.1 The demand curve

TOP TIP!

Be careful when using the term 'demand' and the phrase 'quantity demanded' as these are often confused by candidates in the exams. **Demand** refers to an entire demand curve, whereas **quantity demanded** refers to a specific point on the demand curve.

■ Relationship between an individual consumer's demand and market demand (AO2)

- The **market demand curve** refers to the sum of all individual consumers' demand for a product in a market at each given price level.
- A **market** is any place where transactions take place between buyers and sellers.
- Market demand is found by adding up all individual demand at each price level (see Figure 3.2); for example, if a theatre charges \$50 for tickets per week and the demand from female customers is 600 and 400 from male customers, then the market demand is 1,000 theatre tickets.



■ **Figure 3.2** The market demand curve

■ Non-price determinants of demand (AO2)

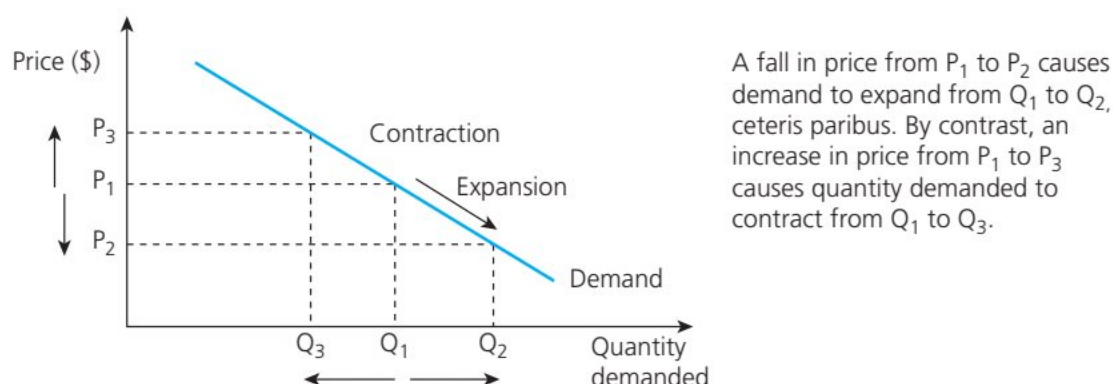
Price is not the only factor that affects the demand for a good or service. **Non-price determinants of demand** are the various factors other than the price of the good or service that affect the demand for the product. Non-price factors that can change the demand (or shift the demand curve) for a good or service depend on 'HIS AGE':

- **Habits, fashions and tastes** – products that become fashionable (for example, smartphones) cause an increase in demand, whereas unfashionable items (for example, last season's clothes) cause a reduction in the level of demand.
- **Income** – higher levels of real disposable income mean that consumers are able and willing to buy more goods and services, *ceteris paribus*. The average person in the USA, for example, will have a higher level of demand for goods and services compared to the average person in Chile, Mozambique or Vietnam.
- **Substitutes and complements** – if the price of a product falls, then it is likely the demand for the **substitute product** will also fall. By contrast, if the price of a product increases, then the demand for its **complementary product** is likely to fall.
- **Advertising** – marketing messages are used to inform, remind and persuade people to buy a firm's products. Businesses such as Coca-Cola, McDonald's and Samsung spend hundreds of millions of dollars each year on their advertising to increase the demand for their products.

- Government policies – rules and regulations such as the legal minimum age to buy tobacco and alcohol, for example, will affect the demand for these products. By contrast, government initiatives to educate people about environmentally friendly cars could encourage more demand for electric cars.
- Economy – whether the country is in a recession or boom has a huge impact on the spending patterns of the population; for example, the global financial crisis of 2008 and the COVID-19 pandemic caused the demand for most goods and services around the world to decline.

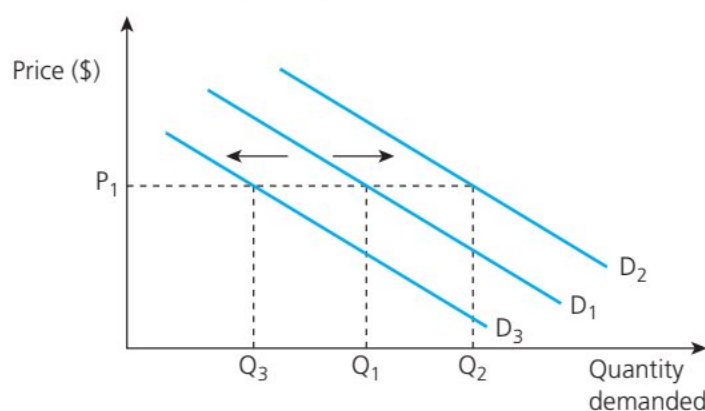
■ Movements along the demand curve and shifts of the demand curve (AO2, AO4)

- A change in the price of a good or service causes a **movement along the demand curve**.
- An increase in price will cause a **contraction** in the quantity demanded for the product.
- A reduction in price will cause an **expansion** in the quantity demanded (see Figure 3.3).



■ **Figure 3.3** Movements along a demand curve

- A change in non-price factors that affect demand causes a **shift** in the demand curve.
- A **decrease in demand** is shown by shifting the demand curve to the left (see Figure 3.4), from D_1 to D_2 , resulting in less quantity demanded at all price levels. At a price of P_1 , demand falls from Q_1 to Q_3 .
- By contrast, an **increase in demand** is shown by a rightwards shift in the demand curve from D_1 to D_3 . At a price of P_1 , demand increases from Q_1 to Q_2 .



■ **Figure 3.4** Shifts in the demand curve

TOP TIP

Ensure you know the difference between *changes in demand* and *changes in the quantity demanded*. A shift in demand is caused by changes in non-price factors that affect demand, such as changes in real disposable income. A movement along a demand curve is caused by changes in the price of the product.

TOP TIP!

Students often claim that the imposition of a *sales tax* on a product shifts its demand curve to the left. This is incorrect as the indirect tax is imposed on firms, which raises their costs of production. The tax increases the price of the product so therefore reduces the quantity demanded, that is, it causes a movement (contraction) along the demand curve.

PAPER 2 EXAM PRACTICE QUESTION 3.1

Distinguish between the income effect and the substitution effect.

[2 marks]

PAPER 3 EXAM PRACTICE QUESTION 3.2

With the aid of an appropriate diagram, explain the impact on the demand for overseas holidays following:

a A significant increase in the average price of domestic holidays.

[4 marks]

b A sudden increase in unemployment in the economy.

[4 marks]

PAPER 1 EXAM PRACTICE QUESTION 3.3

Explain the difference between a *shift* of the demand curve for a product and a *movement* along the demand curve of the product.

[10 marks]

Chapter summary

- The law of demand states that the quantity demanded of a product will fall if the price increases, and vice versa, *ceteris paribus*. This explains the nature of the downward sloping demand curve.
- There are three causes of the negative relationship between price and quantity demanded:
 - 1 The income effect means that as the price of a product falls, the real income of consumers rises, *ceteris paribus*.
 - 2 The substitution effect means that as the price of a good or service falls, more consumers are able to pay, so they are more likely to buy the product.
 - 3 The law of diminishing marginal utility means that consumers will purchase more of the same product only at a lower price due to declining utility gained from each successive unit of consumption. (HL only)
- The demand curve is an illustration of the inverse relationship between price and quantity demanded of a product (see Figure 3.1). Hence, it is drawn as a downward sloping curve.
- The market demand curve refers to the sum of all individual consumers' demand for a product in a market at each given price level (see Figure 3.2).
- The non-price determinants of demand include:
 - ☐ income of consumers
 - ☐ tastes and preferences
 - ☐ future price expectations
 - ☐ the price of related goods (substitutes and complements)
 - ☐ the number of consumers.

- Substitutes are products that can be used instead of each other, such as Coca-Cola or Pepsi, and tea or coffee.
- Complements are products that are jointly demanded, such as cinema movies and popcorn, Doritos and salsa dip, or pencils and erasers.
- Movements along an existing demand curve are caused by price fluctuations. An increase in price results in a *contraction* in quantity demanded, whereas a reduction in price causes an *expansion* in quantity demanded.
- A shift of the demand curve occurs when the entire demand curve for a product changes due to a change in a non-price factor that affects demand. An *increase in demand* is shown by a rightward shift of the demand curve, whereas a *decrease in demand* is shown by a leftward shift.

■ The law of supply (AO2)

- **Supply** refers to the quantity of goods or services that firms are *willing* and *able* to sell at any given price, per time period.
- The **law of supply** states that there is a positive relationship between the quantity supplied of a product and its price, *ceteris paribus*. This is shown diagrammatically by an upward sloping supply curve (see Figure 4.1).
- There are two reasons for this law (the positive relationship between price and supply):
 - Existing firms in the market can earn higher profit margins if they supply more.
 - More firms enter the market as higher prices allow them to cover production costs and earn a profit.

■ Assumptions underlying the law of supply (HL only) (AO2)

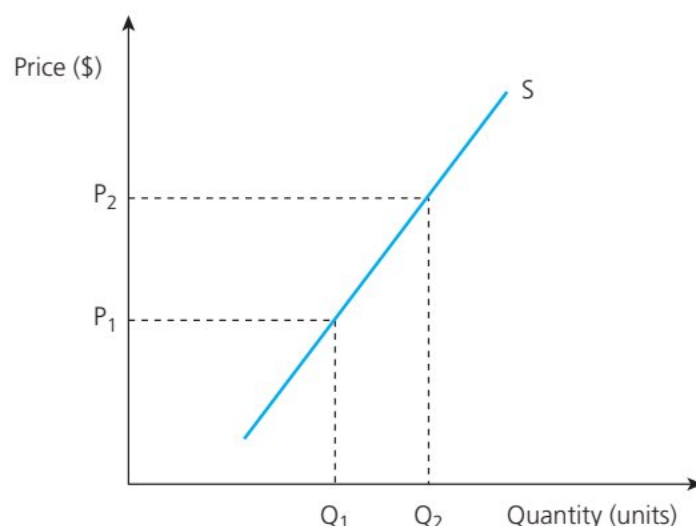
- There are two key assumptions behind the law of supply (or the general rule for the supply curve being upward sloping as illustrated in Figure 4.1):
 - The **law of diminishing marginal returns** (DMR) occurs when employing additional variable factors of production (such as labour) causes the marginal return (additional output) to eventually decline. The diminishing marginal returns from each successive worker, for example, lead to higher production costs, meaning that firms require a higher price to create incentives to produce more output.
 - Increasing **marginal costs** occur when the additional costs of each extra unit of output start to rise (due to diminishing marginal returns). Hence, firms are only willing and able to increase production if they receive a higher price for the additional units of output.
- Marginal cost refers to the cost of producing an additional unit of output. It is calculated as the change in total costs divided by the change in total output, that is, $MC = \Delta TC \div \Delta Q$.
- The principle of increasing marginal costs underpins the law of supply (that is, the direct relationship between price and quantity supplied). Essentially, the supply curve slopes upwards because higher prices are needed to cover the higher marginal costs of production when a firm increases its output.

TOP TIP!

The law of diminishing marginal returns applies only in the *short run*, simply because all factors of production are variable in the long run.

■ The supply curve (AO4)

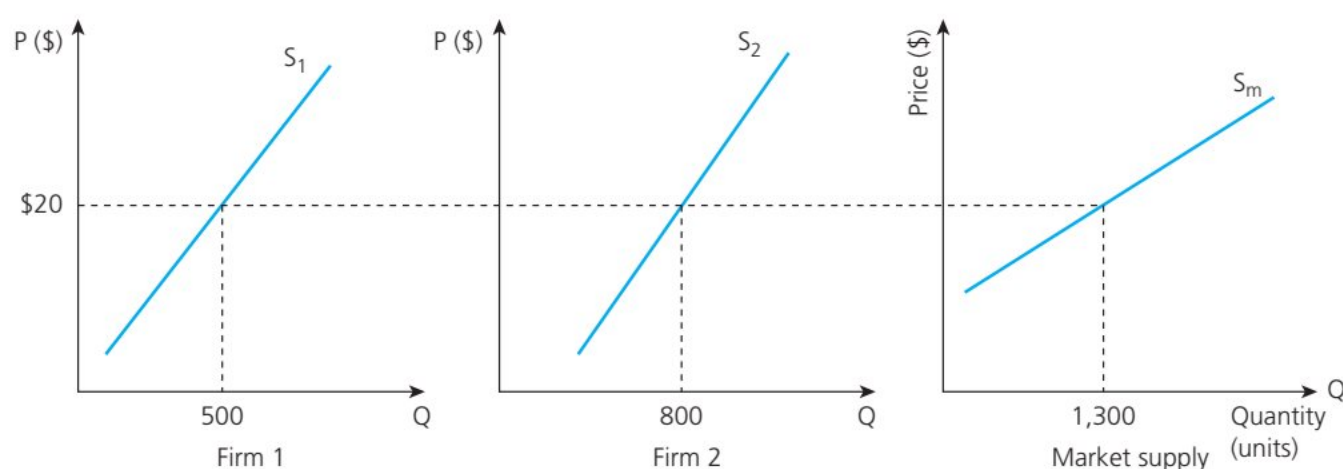
- The supply curve for a product is shown diagrammatically as an upward sloping linear line, due to the law of supply.
- In Figure 4.1, an increase in the price from P_1 to P_2 creates an incentive for firms to spend more time and effort to produce (or supply) the product. Hence, the quantity supplied increases from Q_1 to Q_2 units.



■ **Figure 4.1** The supply curve

■ Relationship between an individual producer's supply and market supply (AO2)

- The **market supply curve** refers to the sum of all individual supply of a product at each price level (see Figure 4.2).

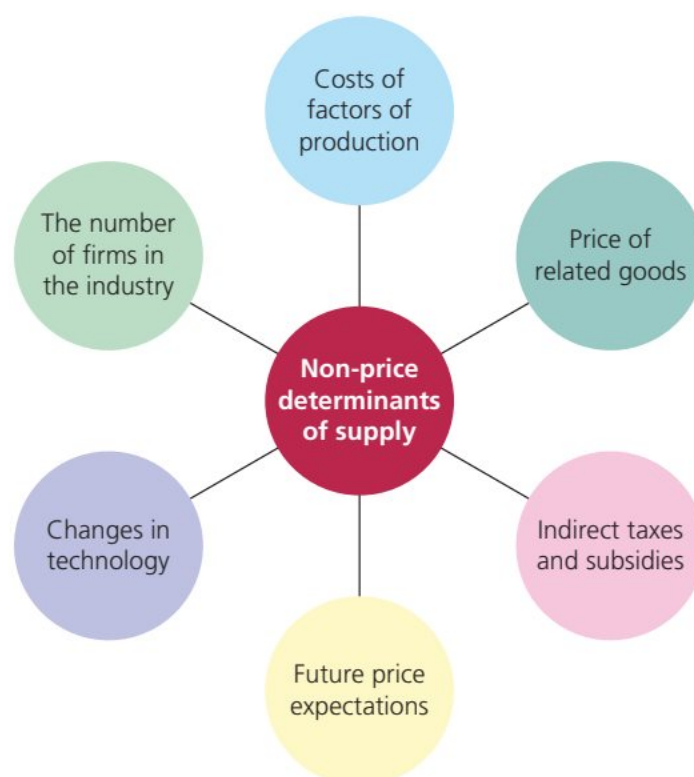


■ **Figure 4.2** The market supply curve

■ Non-price determinants of supply (AO2)

Price is not the only determinant of the level of supply of a good or service. **Non-price determinants of supply** refer to the various factors other than the price of a product that affect the supply of the good or service. These factors change the supply (shift the supply curve) of a good or service.

- **Changes in costs of factors of production (FOPs)** – a change in the costs of production will shift the supply curve of the product. An increase in production costs will shift the supply curve to the left, as higher costs mean existing



■ **Figure 4.3** Non-price determinants of supply

firms cannot produce the same quantity as before and fewer firms are willing and able to supply output, and vice versa.

- **Prices of related goods (in the cases of joint and competitive supply)** – in the case of **competitive supply**, the output of one product (such as apples) prevents or limits the output of alternative products (such as oranges) due to competing resources (such as land resources). In the case of **joint supply**, an increase in the production of one product automatically increases the supply of another product, such as cows and milk or lamb and wool.

TOP TIP!

'Rising demand for a product will cause an increase in the supply of the product, which will probably mean lower prices.'

This is incorrect as rising demand (shown by a rightwards shift of the demand curve) would cause equilibrium price to rise, which could lead to an expansion along the supply curve, that is, an *increase in the quantity supplied* (rather than an *increase in supply*).

- **Indirect taxes and subsidies** – **indirect taxes** are imposed on the purchase of goods and services, so effectively increase the price paid by customers. Indirect taxes reduce market supply, illustrated by a leftwards shift of the supply curve, due to higher production costs. By contrast, **subsidies** are financial assistance from the government to encourage production of certain products by reducing production costs. Hence, subsidies shift the supply curve of a product to the right.

TOP TIP!

'An increase in taxes causes demand to fall, ceteris paribus.'

This statement is not entirely true, as it is a change in direct taxes that can cause a fall in quantity due to lower disposable incomes. However, an increase in indirect taxes (which are imposed on producers and suppliers) would shift the supply curve to the left, due to higher costs of production.

- **Future price expectations** – if producers expect the demand for their product to increase sharply in the near future (thus causing higher prices and profit margins), the firms are likely to increase production in the current time period, *ceteris paribus*. Likewise, if producers are concerned about future market conditions deteriorating (thus causing prices to fall in the future), current production will fall, *ceteris paribus*.
- **Changes in technology** – advances in technology lead to more production of goods and services, as shown by a rightwards shift of the supply curve.
- **Number of firms** – if the market for a product grows, it is likely that there will be an increase in the number of firms in the industry. Hence, an increase in the number of firms in a market will shift the supply curve to the right, and vice versa.

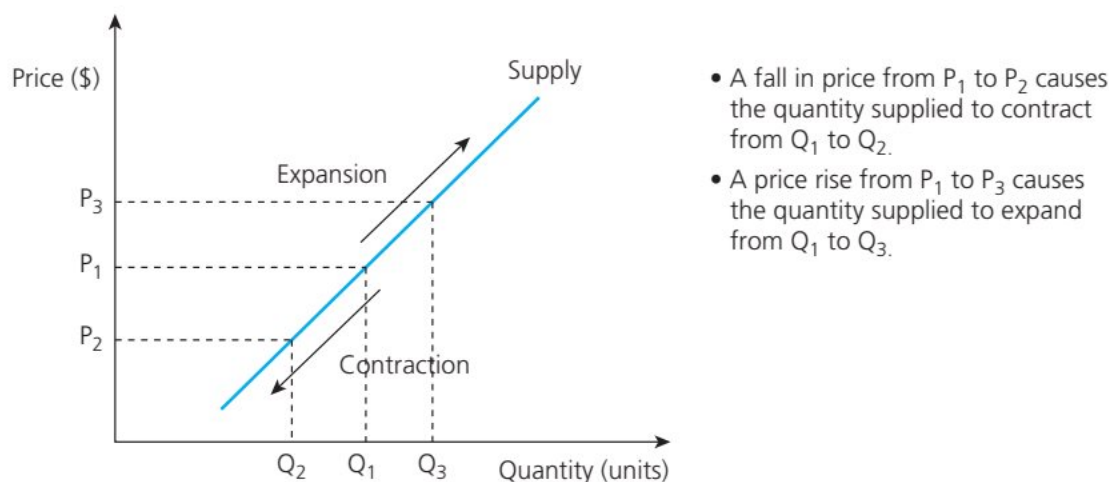
TOP TIP!

One way to remember the key non-price determinants of supply is to use the acronym **CISTERN**: **C**osts of production (of factors of production), **I**ndirect taxes, **S**ubsidies, **T**echnological change, **E**xpectations of future prices, prices of **R**elated products (joint supply or competitive supply) and the **N**umber of firms in the industry.

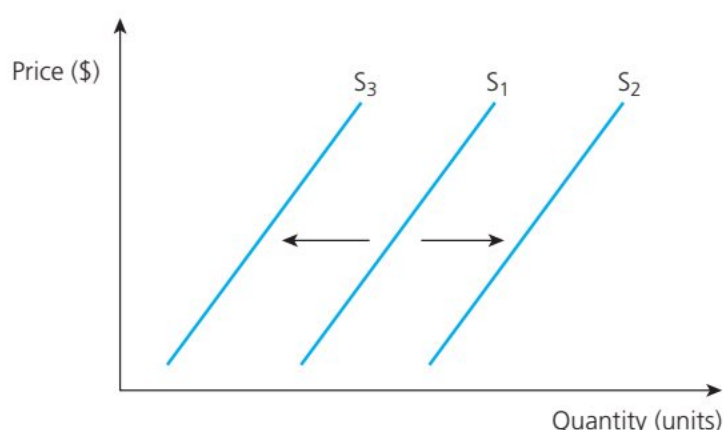
■ Movements along and shifts of the supply curve (AO2)

- A **movement** along a supply curve occurs if the price changes, causing a change in the *quantity supplied* (see Figure 4.4).

- A **shift** in the supply curve is caused by changes in non-price factors that affect supply, causing a *change in supply*. In Figure 4.5, a rightwards shift (from S_1 to S_2) shows an increase in supply whereas a leftwards shift (from S_1 to S_3) shows a decrease in supply.



■ **Figure 4.4** Movements along the supply curve



■ **Figure 4.5** Shifts in the supply curve

TOP TIP!

It is essential that you know the difference between a shift in supply and a movement of supply. A *shift* in supply is caused by changes in non-price factors that affect supply (such as taxes and subsidies). A *movement* in supply is caused only by changes in price.

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 4.1

With the use of a suitable diagram, explain the impact on the market for laptop computers due to the following events:

- The government gives laptop producers a per unit subsidy to increase the output for educational purposes. [4 marks]
- An increase in the average wage rate for workers at laptop manufacturing firms. [4 marks]

PAPER 1 EXAM PRACTICE QUESTION 4.2

Explain **two** factors that can cause a firm's supply curve to shift to the right. [10 marks]

PAPER 1 EXAM PRACTICE QUESTION 4.3

Explain the difference between a *shift* of the supply curve for a product and a *movement* along the supply curve of the product. [10 marks]

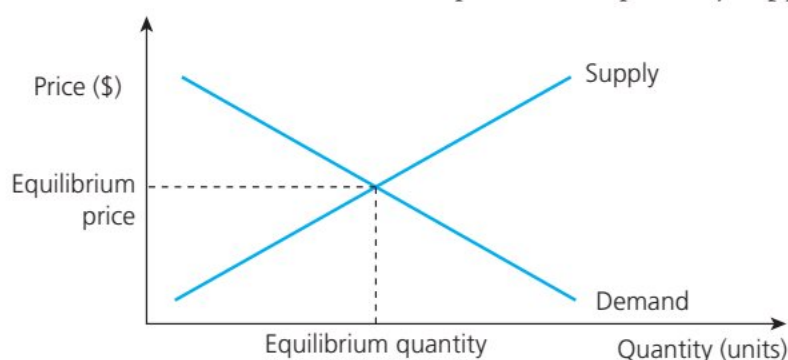
Chapter summary

- Supply is the quantity of a good or service that firms are willing and able to provide at given prices, per time period.
- The law of supply states that there is a direct (or positive) relationship between quantity supplied and price.
- The law of diminishing marginal returns is an assumption underlying the law of supply. It states that by employing additional variable factors of production while keeping a least one factor of production fixed, the marginal returns will eventually decline. (HL only)
- The assumption of increasing marginal costs also underpins the law of supply. The supply curve slopes upwards because higher prices are needed to cover the higher marginal costs of production when a firm increases its output. (HL only)
- The supply curve is a diagrammatic representation of the relationship between the price of a good or service and the quantity supplied, for a given time period.
- Market supply refers to the sum of all individual supplies of producers in the market at each given price level for a product.
- Non-price determinants of supply are the factors other than the price of a product that affect its supply in the market. These include:
 - changes in costs of factors of production
 - prices of related goods (joint and competitive supply)
 - indirect taxes and subsidies
 - future price expectations
 - changes in technology
 - the number of firms in the market.
- Competitive supply means the output of one product prevents or limits the supply of alternative products, due to competing resources.
- Joint supply refers to the supply of a product that results in the output of at least one by-product.
- Indirect taxes are government levies on expenditure rather than on incomes. Essentially, these taxes add to the producer's costs of production.
- Subsidies are a form of financial aid from the government to encourage the output or supply of certain products by reducing the costs of production.
- A movement along a supply curve occurs if the price changes, causing a change in the quantity supplied (see Figure 4.4).
- A shift of the supply curve is caused by changes in non-price factors that affect supply, causing a change in supply at all given prices (see Figure 4.5).

Competitive market equilibrium

■ Demand and supply curves forming a market equilibrium (AO4)

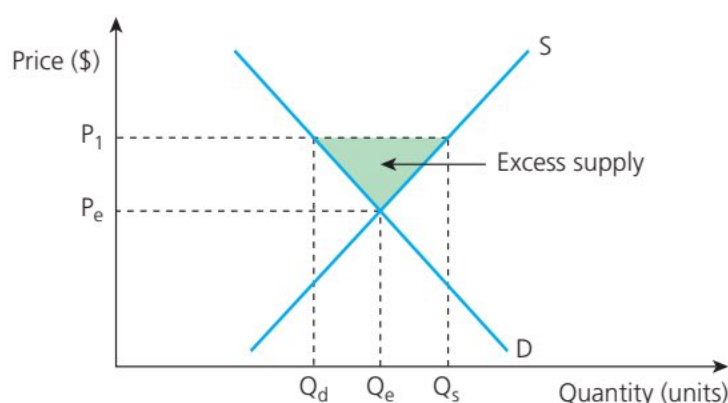
- **Market equilibrium** is the condition that holds when a market is cleared of any shortage or surplus. It occurs at the price where the quantity demanded for a product is equal to the quantity supplied (see Figure 5.1).



■ **Figure 5.1** Competitive market equilibrium

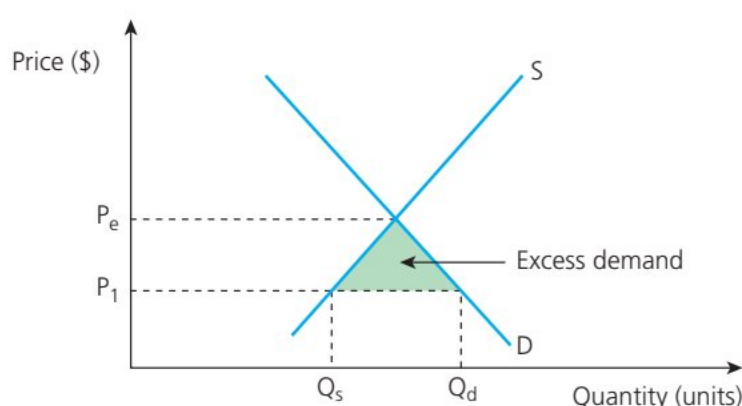
- A change in a non-price determinant of supply or demand will cause a change in the market equilibrium price. For example:
 - A successful advertising campaign that promotes the consumption of fresh fish will shift its demand curve to the right, *ceteris paribus*. This will, subsequently, cause the equilibrium price and quantity traded to rise.

- A severe drought would shift the supply curve of agricultural products to the left, *ceteris paribus*. This would then lead to an increase in the equilibrium price and a fall in the quantity traded.
- **Market disequilibrium** occurs when the quantity demanded for a product is not equal to the quantity supplied. This is inefficient due to shortages (excess demand) or surpluses (excess supply).
- **Excess supply** occurs when the price is set above the equilibrium, that is, a surplus exists, as shown by the green shaded area in Figure 5.2.
- **Excess demand** occurs when the price is set below the equilibrium, that is, a shortage exists, as shown by the green shaded area in Figure 5.3.



Excess supply occurs at all prices above the market equilibrium. For example, at a price of P_1 , quantity supplied is Q_s (as firms are incentivized to produce more) whereas quantity demanded is only Q_d (the higher price causes an expansion in quantity supplied and a contraction in quantity demanded). Hence, there is a surplus, as shown by the shaded area.

■ **Figure 5.2** Excess supply (surplus)



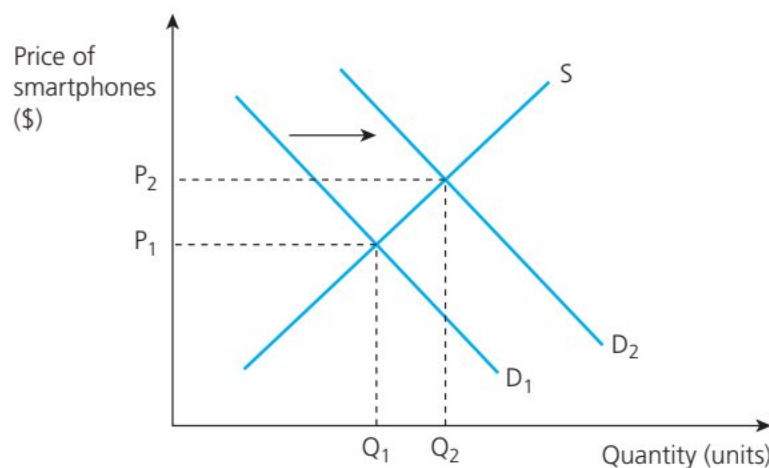
Excess demand occurs at all prices below the market equilibrium. For example, at a price of P_1 , quantity demanded is Q_d (as firms are incentivized to produce more) whereas quantity supplied is only Q_s (the lower price causes an expansion in quantity demanded and a contraction in quantity supplied). Hence, there is a shortage, as shown by the shaded area.

■ **Figure 5.3** Excess demand (shortage)

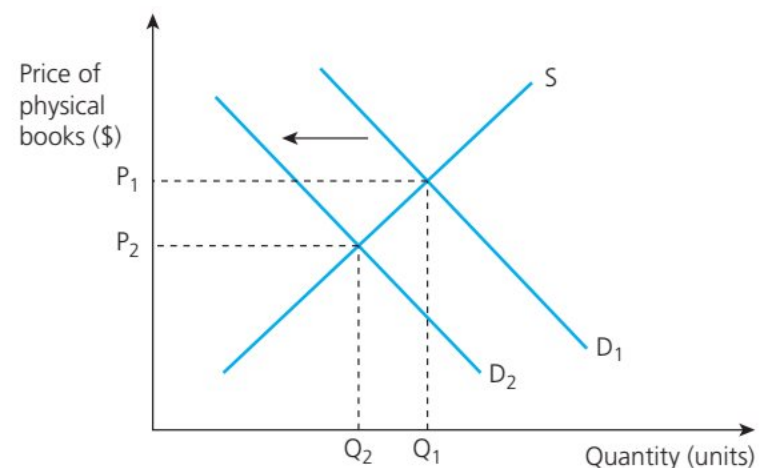
- In competitive markets, without government intervention, there will be a tendency for price to fall if there is excess supply in order to remove the surplus.
- In competitive markets, without government intervention, there will be a tendency for price to increase if there is excess demand in order to remove the shortage.

■ Shifting the demand and supply curves (AO2, AO4)

- Changes in a non-price determinant of supply or demand will cause a shift in the curve, *ceteris paribus*. This will subsequently cause a change in the equilibrium price and quantity traded.
- In Figure 5.4, an increase in average household incomes causes the demand curve for smartphones to shift outwards from D_1 to D_2 , resulting in equilibrium price rising from P_1 to P_2 and equilibrium quantity to also increase from Q_1 to Q_2 .
- By contrast, a fall in the price of e-books causes the demand for physical books to decline, as shown in Figure 5.5. The lower price of the substitute product causes the demand curve for physical books to shift inwards from D_1 to D_2 , resulting in equilibrium price falling from P_1 to P_2 and equilibrium quantity also falling from Q_1 to Q_2 .

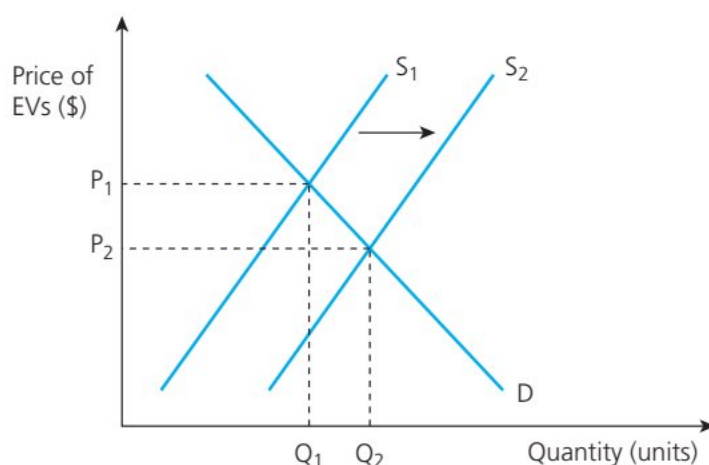


■ **Figure 5.4** An increase in demand

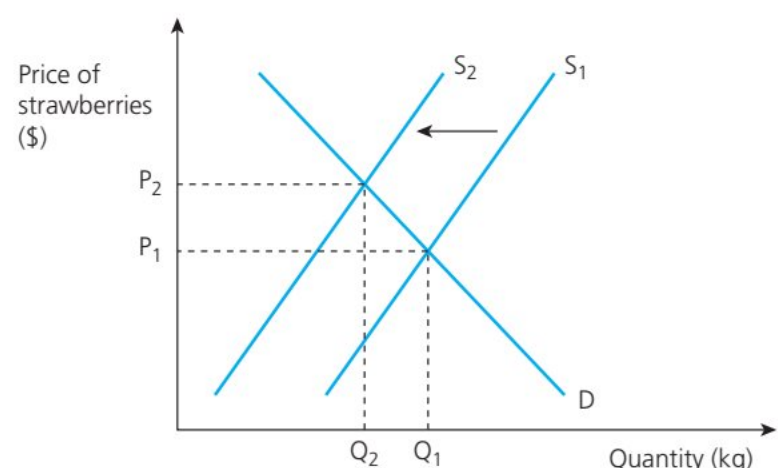


■ **Figure 5.5** A fall in demand

- Market prices can also change due to changes in non-price factors that shift the supply curve. In Figure 5.6, technological progress increases the production of electric vehicles (EVs), which shifts the supply curve to the right from S_1 to S_2 . This subsequently reduces the market price from P_1 to P_2 and expands the quantity demanded from Q_1 to Q_2 .
- By contrast, in Figure 5.7, severe weather conditions shift the supply curve of strawberries to the left from S_1 to S_2 , thereby increasing the equilibrium price (from P_1 to P_2) and reducing the quantity traded (from Q_1 to Q_2).



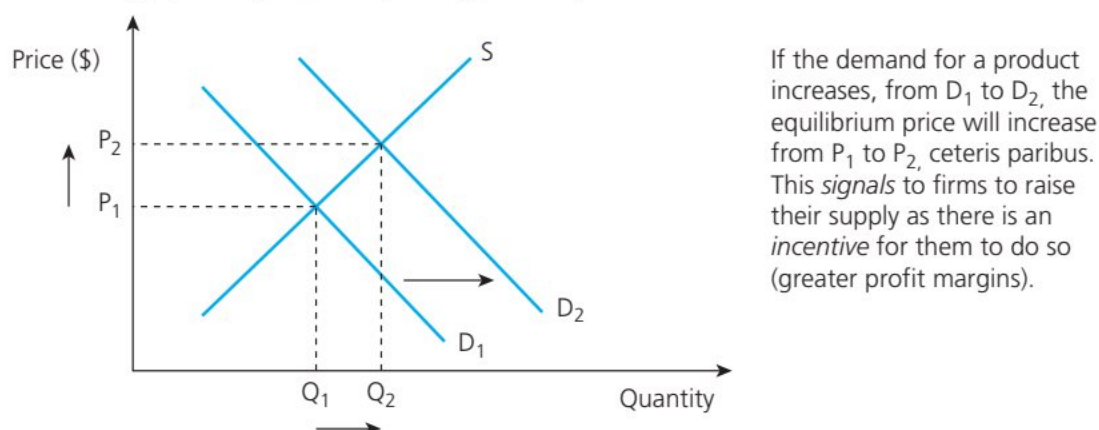
■ **Figure 5.6** An increase in supply



■ **Figure 5.7** A fall in supply

■ Functions of the price mechanism (AO2)

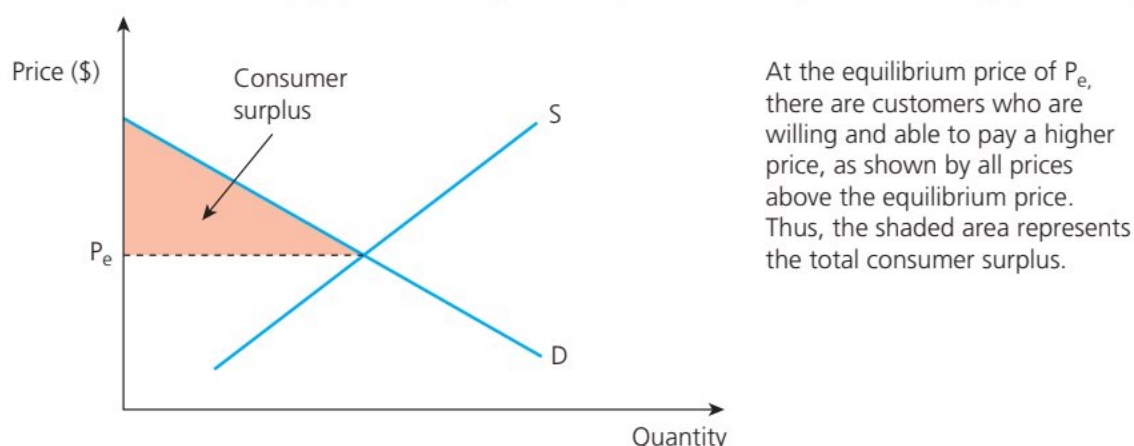
- The **price mechanism** refers to the means by which the market forces of demand and supply determine the allocation of an economy's resources between competing uses.
- Recall that the basic economic problem stems from finite resources and infinite wants. This creates a situation of scarcity, so imposes production and consumption choices and opportunity costs. Fluctuating market prices reflect the relative scarcities and surpluses in different markets.
- There are two main functions of the price mechanism – **resource allocation** (signalling and incentives functions) and **rationing** (of scarce resources).
 - The **signalling function** of the price mechanism provides information to producers and consumers regarding where resources are required (in markets where prices increase) and where they are not (in markets where prices fall).
 - The **incentives function** of the price mechanism provides an enticement (motivation) for producers and consumers to change their behaviour in order to maximize their self-interest (private benefits).
- The **rationing function** of the price mechanism deters some consumers from buying a product or resource due to higher prices, thereby rationing (preserving) it. It serves to ration scarce resources when the demand for a product exceeds its supply.
- In a market economy, the signalling function and incentives function result in the reallocation of resources if prices change due to changes that affect the demand for or supply of a product (see Figure 5.8).



■ **Figure 5.8** Signalling and incentive functions of price

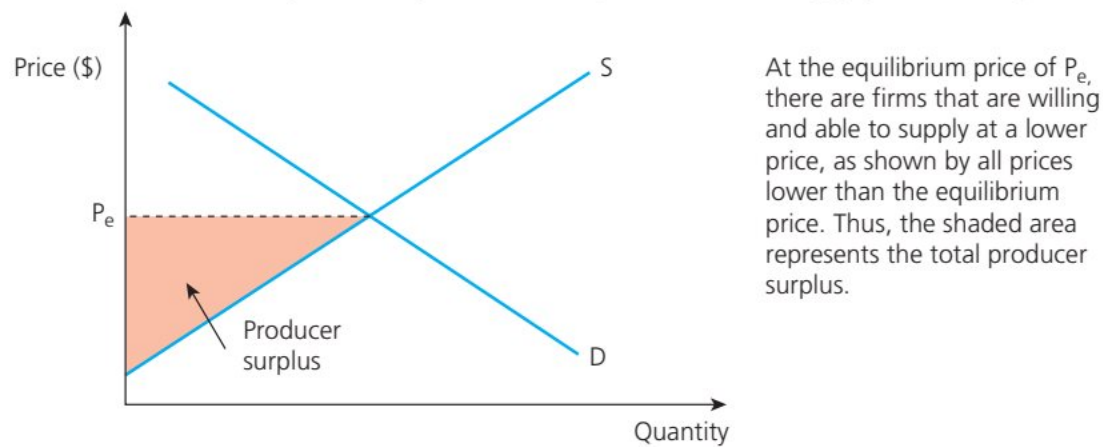
■ Consumer and producer surplus (AO2, AO4)

- **Consumer surplus** refers to the benefits to buyers who are able to purchase a product for less than they are willing to do so. It is the difference between the price that customer actually pays and the price they were willing and able to pay (see Figure 5.9).



■ **Figure 5.9** Consumer surplus

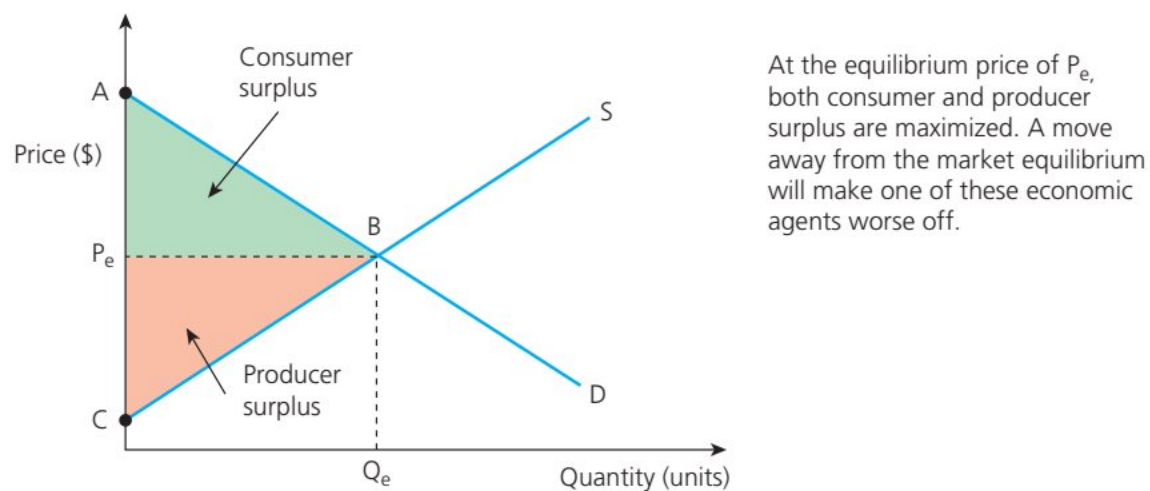
- By contrast, **producer surplus** is the difference between the price that firms actually receive and the price they were willing and able to supply at (see Figure 5.10).



■ **Figure 5.10** Producer surplus

■ Social/community surplus

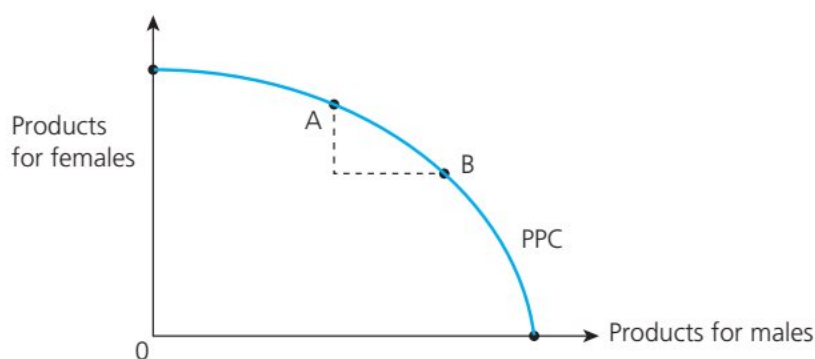
- **Community surplus** (or **social surplus**) is the sum of consumer and producer surplus at a given market price and output.
- It represents the total benefit available to society from an economic activity. In Figure 5.11, community surplus is represented by the area ABC, consisting of both consumer surplus (area A,B, P_e) and producer surplus (area B,C, P_e).
- Community surplus is maximized when the price mechanism clears the market of any excess demand or supply. As there are no shortages or surpluses at the market clearing price (P_e) and equilibrium quantity (Q_e), resources are allocated efficiently (at point B). Hence, social surplus is maximized.



■ **Figure 5.11** Social surplus

■ Allocative efficiency at the competitive market equilibrium (AO2, AO4)

- In a competitive market economy, **allocative efficiency** occurs at the market equilibrium because both consumer and producer surplus are maximized at this point. This means resources are allocated in an optimal way such that changing the price would result in consumers or producers being worse off.
- Allocative efficiency can be illustrated by using a production possibility curve (PPC) diagram (see Figure 5.12).
- Any point on the PPC represents allocative efficiency because any reallocation of resources will make others worse off. For example, if the economy reallocates production from point A to point B, then males benefit while females lose.



■ Figure 5.12 Allocative efficiency

The opposite is true if the economy moves from point B to point A.

- Allocative efficiency can be increased if producing or buying more of something results in a greater marginal benefit (MB) to society than marginal cost (MC). This means that allocative efficiency is achieved when the marginal benefit of economic activity is equal to the marginal cost, that is, $MB = MC$.

TOP TIP!

While this section of the syllabus examines the benefits of the price mechanism in terms of allocating scarce resources in an efficient way, this does not always occur in the real world. **Market failure** (see Chapters 11 and 12) occurs when the signalling, incentive and rationing functions of the price mechanism fail to operate optimally, thereby leading to a deterioration in economic well-being.

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 5.1

Using an appropriate diagram, explain the term *competitive market equilibrium*. [4 marks]

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 5.2

Using an appropriate diagram, distinguish between excess demand and excess supply. [4 marks]

PAPER 3 EXAM PRACTICE QUESTION 5.3

- a Plot the following demand and supply schedules and state the equilibrium price and equilibrium quantity. [4 marks]

P (\$)	Qd ('000)	Qs ('000)
0	80	0
10	60	20
20	40	40
30	20	60
40	0	80

- b Using your diagram from part a, calculate the quantity of excess demand at a price of \$10 per unit and the excess supply at a price of \$40 per unit. [2 marks]

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 5.4

Using an appropriate demand and supply diagram, explain the difference between consumer and producer surplus. [4 marks]

TOP TIP!

Higher Level students need to be able to calculate consumer surplus and producer surplus from a diagram.

PAPER 3 EXAM PRACTICE QUESTION 5.5

- a** Use the data in the demand and supply schedules below to plot a demand and supply diagram. [4 marks]

P (\$)	Qd	Qs
0	40	0
20	30	10
40	20	20
60	10	30
80	0	40

- b** Use your graph to calculate the total value of the consumer surplus at the competitive market equilibrium price. [2 marks]
- c** Calculate the total value of the producer surplus if the price falls to \$20. [2 marks]
- d** Calculate the quantity of excess demand at a price of \$20 per unit. [2 marks]
- e** Calculate the quantity of excess supply at a price of \$60 per unit. [2 marks]

Chapter summary

- Market equilibrium occurs when the quantity demanded for a product is equal to the quantity supplied of the product, that is, there are no shortages or surpluses.
- Diagrammatically, market equilibrium is determined at the point where the demand and supply curves intersect. Hence, shifts in the demand or supply curves will create a new market equilibrium.
- Excess supply occurs when the price of a product is set above the equilibrium (see Figure 5.2).
- Excess demand occurs when the price of a product is set below the equilibrium (see Figure 5.3).
- The price mechanism involves the interactions between buyers and sellers (the forces of demand and supply) in the free market in order to allocate resources, thereby determining production and consumption choices.
- The functions of the price mechanism are resource allocation (by signalling and incentives) and rationing.
- The signalling function provides information to producers and consumers regarding where resources are required (in markets where prices increase) and vice versa.
- The incentives function provides motivation for producers and consumers to change their behaviour to maximize their self-interest (private benefits).
- The rationing function deters some consumers from buying a product due to higher prices, thereby rationing (preserving) it.
- Consumer surplus is the benefit to consumers who are able to purchase a product for less than they are willing to do so.
- Producer surplus is the difference between the price that firms actually receive and the price they were willing and able to supply at.

- Community surplus (also known as social surplus) is the sum of consumer and producer surplus at a given market price and output.
- Consumer surplus and producer surplus (and therefore social surplus) are maximized at the competitive market equilibrium.
- Allocative efficiency is the socially optimal situation that occurs when resources are distributed in such a way that no one can be made better off without making someone else worse off. Formulaically, this occurs when marginal benefit (MB) equals marginal cost (MC).
- Diagrammatically, allocative efficiency is maximized at the competitive market equilibrium because this is also where social surplus is maximized.

Critique of the maximizing behaviour of consumers and producers (HL only)

■ Rational consumer choice (AO3)

- **Rational consumer choice** refers to the decision-making process based on people making choices that result in the optimal or maximum level of benefits or utility for an individual.
- It occurs when consumers make choices based on the following assumptions:
 - there is no change in the habits, tastes and preferences of consumers
 - consumers have perfect knowledge (information about the product and market)
 - consumers aim to maximize the utility from their purchases.
- Rational choice theory states that decision makers use logic and reasoning to determine the right choice associated with an individual's best self-interest. It is the basis of most introductory and mainstream economic theories.
- However, **behavioural economics** challenges the assumption of pure and consistent rationality in people's decision-making. It questions whether people are always able and/or willing to act rationally and whether all firms aim to maximize their profits.

■ Assumptions

- Traditional economic theories suggest that choice is a good thing. These theories, such as Adam Smith's notion of the invisible hand, have three key assumptions: consumer rationality, utility maximization and perfect information.
- **Consumer rationality** assumes that individuals use rational methods to make sensible choices, such as choosing the products that offer the best value for money.
- **Utility maximization** assumes that people decide on the option that gives them the highest level of utility (satisfaction).
- **Perfect information** assumes that decision makers have equal and easy access to information in order to make well-informed choices or decisions.

■ Behavioural economics – limitations of the assumptions of rational consumer choice (AO3)

- In the real world, the above assumptions do not always hold true, so people are not always able to make a rational decision. For example, people may choose to eat too much junk food, take too little exercise, smoke too much, or do not save enough money for their retirement.
- In some cases, being given too many choices, such as different service plans from mobile (cell) phone operators, can be both physically and mentally exhausting.
- Hence, behavioural economists question whether economic agents are ever able to have the time and resources to act in a well-informed and fully rational manner, such as the influence of peer pressure and the desire to conform to social norms. They also study how choices can be influenced or swayed by policymakers in order to improve decision-making and economic well-being.

Limitations of the assumptions of rational consumer choice include the following:

- **Biases** – preconceptions and emotions can influence how people process complex information as part of the decision-making process. Such cognitive biases make it difficult

for people to make a pure and instantaneous rational decision. Biases can constrain people's tendency or ability to make rational decisions. Examples of biases include:

- **Rule of thumb** – a type of bias referring to making decisions in a pragmatic and approximate way without having to be exact. Decisions are based on experience and sticking to a default choice, such as choosing the same selection of meals at your favourite fast-food restaurant.
- **Anchoring** – creates a bias in favour of a particular choice based on a reference point (the anchor) based on past purchasing experiences. For example, real estate agents use anchors to list average property prices in an area as an anchor for potential home buyers.
- **Framing** – cognitive bias based on how information is presented in order to influence choices. For example, an option can be presented to highlight the positive or negative aspects of the same choice, which can influence the relative attractiveness to decision makers. Coffee shop retailers use cups of different sizes for their beverages (such as small, medium and large coffees) but would never frame their larger sized drinks as having more water!
- **Availability** – bias occurs when people overestimate the likelihood of an event or the frequency of its occurrence. This causes people to misjudge the probability and risks associated with a decision, such as overestimating the likelihood of shark attacks, aircraft accidents and winning the lottery.
- **Bounded rationality** – people frequently make decisions without the ability to gather all relevant information they need to make the most rational (or best) possible choice in a timely manner. The term was coined by American economist Herbert A Simon (1916–2001), recipient of the Nobel Prize in Economic Sciences (1978). The theory of bounded rationality states that decisions are often based on incomplete information, so economic agents can be rational only to a limited extent.
- **Bounded self-control** – people may lack the self-control to think for themselves and to make rational choices, even in situations when they know what is best for them. For example, workers (and students) may procrastinate, thereby reducing their productivity, diners may overeat at a restaurant, employers may not save enough money for their retirement, or gamblers may not know when to stop.
- **Bounded selfishness** – people do not only act in self-interest but often behave reciprocally and altruistically rather than pursuing their pure self-interest. Examples include people who offer money to charities, those who do volunteer work and those who donate organs for kidney transplants.
- **Imperfect information** – the lack of easy and equal access to information makes rational decision-making difficult. For example, people do not necessarily know the long-term costs and benefits of their decisions, such as the complexities and underlying risks associated with insurance policies, pensions schemes and financial investments.

■ Behavioural economics in action (AO3)

- Economic models tend to assume that economic agents are rational decision makers. However, behavioural economics and the growing issue of market failures have challenged this core assumption. For example, despite being informed and educated about the harmful effects of excessive smoking, drinking of alcohol and gambling, many people continue to consume such demerit goods.

- Contrary to traditional economic thinking, many decisions are made instinctively and unconsciously rather than logically and consciously (by weighing up all the costs and benefits of a particular choice).
- As economic agents are not always or necessarily rational, choice architecture and nudges can be used.

■ Choice architecture

- **Choice architecture** is the deliberate design of different ways of presenting choices to people and the impact of these designs on decision-making. For example, marketers often use phrases such as 'most popular', 'our top pick' or 'best seller' to reduce choice overload. Simplifying the options makes it easier to make a choice.
- The term was coined by behavioural economists Richard Thaler and Cass Sunstein (2008).
- A **choice architect** is the person or organization responsible for designing the context and environment in which decisions are made. They help to deal with the problem of choice overload (Figure 6.1).



■ **Figure 6.1** Choice architects help to reduce choice overload

Choice architecture falls into three categories:

- **Default choices** – This occurs when choice architects design choices being made automatically without much, if any, thought. The default choice is the easiest one for consumers and requires the least effort. An example is auto-renewal options for subscription services (such as Spotify and Netflix) and motor insurance policies. Research shows that people rarely change their default course of action.
- **Restricted choices** – This occurs when choice architects limit the options available to people. The choices are usually restricted by the government or other authority. For example, a tax on sugary drinks requires retailers and restaurants to charge a premium price on drinks with high sugar content. Restricting the number of choices available can help consumers to make a more rational or desirable decision.
- **Mandated choices** – This occurs when people are required to decide whether they wish to take part in something. Government policymakers use mandated choices to ensure people decide on matters that are deemed to be important to society and the economy. For example, some governments give mandated choices to individuals who must register to vote in person (at a polling station) or by post. Essentially, they are required by law to make that choice.

■ Nudge theory

- **Nudge theory** is the practice of influencing the choices that people make. It involves choice architecture being used to present choices to individuals. The theory was coined by Richard Thaler, winner of the Nobel Prize in Economic Sciences (2017) for his influential work in behavioural economics.
- Nudges are created by choice architects who use subtle prompts or tweaks to alter social and economic behaviour, but without taking away the power for people to choose, with the intention of improving social welfare and economic well-being. In the words of Thaler, *'To count as a mere nudge, the intervention must be easy and cheap to avoid. Nudges are not mandates. Putting the fruit at eye level counts as a nudge. Banning junk food does not.'* (2008)
- Behavioural economists have shown that people make decisions that are far from rational. Instead, they make decisions quickly under pressure, often based on intuition and sometimes unconsciously but guided by personal, psychological and social biases. For example, governments and businesses may use an opt-out scheme rather than an opt-in arrangement for pension contributions. This means workers are automatically enrolled in the pension scheme and have to make a deliberate effort to choose to opt out of the programme. The nudge therefore encourages people to save and contribute towards their retirement funds.

■ Business objectives (AO3)

- Traditional economic theory suggests that **profit maximization** is the ultimate business objective of private sector firms. It occurs when there is the greatest positive difference between total revenue and total costs, or at the level of output where marginal revenue is equal to marginal cost ($MR = MC$).
- Profit is the reward for entrepreneurs taking risks in economic activity. It is generally assumed that firms are profit maximizers, seeking to produce at the level of output that generates the highest level of profits. Profit provides incentives for entrepreneurs to succeed and is an important source of finance for businesses.

■ The profit-maximizing condition

Profit maximization occurs at the output level where $MC = MR$. This is because:

- If $MR > MC$, profits will rise if the firm increases its output as the marginal (additional) revenue outweighs the marginal cost, that is, profits increase when $MR > MC$.
- If $MC > MR$, the firm will reduce its output as the marginal cost outweighs the marginal revenue, that is, profits fall when $MC > MR$.
- Hence, profits are maximized when $MC = MR$. This is because each extra unit of output creates no extra loss or extra revenue.

■ Alternative business objectives

- While profit maximization has dominated neo-classical economic theory about the behaviour of firms, behavioural economists suggest profit is only one goal for entrepreneurs and other stakeholders. Alternative business objectives include corporate social responsibility (CSR), market share, satisficing and growth.
- **Corporate social responsibility** is about setting ethical objectives and committing to those goals in order to benefit both internal and external stakeholders. The purpose is not to focus only on the objectives of the owners or shareholders of the business.

CSR is about a firm committing to the values, decisions and actions that benefit society as a whole. Examples include measures to improve the economic well-being of workers and reducing a firm's carbon footprint in order to deal with the problems of climate change.

- **Market share** refers to a firm's portion of the total value of sales revenue in a particular industry. It is a measure of a firm's relative size by expressing its sales revenue as a percentage of the total market sales revenue. Being able to compare the relative size of firms in an industry enables entrepreneurs to take appropriate actions to remain competitive. Market share is calculated by using the formula:

$$\frac{\text{Firm's total sales revenue}}{\text{Industry's total sales revenue}} \times 100$$
- **Satisficing** – an idea introduced in 1956 by Herbert A Simon (the American economist who coined the term 'bounded rationality') as an alternative objective to profit maximization. Satisficing is about aiming for a satisfactory or sufficient level of profit rather than the greatest amount of profit. This is because profit maximization might require significant expenditure of time, effort and financial resources.
- **Growth** – an increase in the size and scale of operations of a firm, typically measured in terms of sales revenue, market share or profits. Firms that aim for growth pursue the benefits of economies of scale, the spreading of risks and greater market power.

TOP TIP!

Despite firms having alternative business objectives, they are not necessarily mutually exclusive. For example, pursuing CSR can help to improve a firm's corporate image, thereby enabling it to grow and increase its market share. Essentially, this can help the firm to maximize long-term profits.

TOP TIP!

In line with the requirements of the IB Economics course, make sure you are able to provide real-world examples of behavioural economics, including biases, choice architecture, nudge theory and business objectives.

PAPER 1 EXAM PRACTICE QUESTION 6.1

- a Using behavioural economic theory, explain **two** limitations of the assumptions of rational consumer choice. [10 marks]
- b Using real-world examples, discuss the effectiveness of behavioural economics in action in terms of helping economic agents to make better choices. [15 marks]

Chapter summary

- Rational consumer choice is the decision-making process based on the neo-classical assumption that people make choices in order to optimize the benefits (utility) from consumption.
- There are three main assumptions behind rational consumer choice: (1) consumer rationality, (2) utility maximization and (3) perfect information.
- Behavioural economics uses aspects of cognitive psychology to improve our understanding, as economists, of the decision-making process by economic agents. It challenges the assumption that consumers and firms always make logical and rational choices in their attempt to maximize their own benefits.

- The limitations on the ability of consumers to make rational decisions include: cognitive biases, bounded rationality theory, bounded self-control, bounded selfishness and imperfect information.
- Biases consist of:
 - a rule of thumb – when people stick to their default choice or preference
 - anchoring – cognitive bias that influences how people view a product by comparing it to something else
 - framing – bias based on how information is presented in order to influence choices
 - availability – bias that occurs when people overestimate the likelihood of an event or the frequency of its occurrence.
- Bounded rationality is a limitation on rational consumer choice as decisions are often based on incomplete information, so economic agents can be rational only to a limited extent.
- Bounded self-control means people may lack the self-discipline to think for themselves and therefore to make rational choices, even when they know what is best for them.
- Bounded selfishness – people do not only act in self-interest, such as volunteer and charity workers. Maximizing their own benefits is not the priority, so this casts doubt on the maximizing behaviour of consumers and producers.
- Imperfect information – the lack of access to information (such as trade secrets or the cost of accessing information) can limit and distort rational decision-making.
- Behavioural economics in action consists of the use of choice architecture and nudges.
- Choice architecture is the deliberate design of different ways of presenting choices to people and the impact of these designs on decision-making.
- Choice architecture falls into three categories:
 - default choice occurs when people resort to the easiest option as it requires the least effort
 - restricted choices limit the options available to people in order to help people make more rational or desirable decisions
 - mandated choices, which by law require people to decide whether they wish to take part in something.
- Nudge theory is the practice of influencing the choices that people make. Nudges are created by choice architects who use subtle prompts or tweaks to alter social and economic behaviour, but without taking away the power for people to choose.
- Traditional neo-classical economic theory suggests that profit maximization is the ultimate business objective of private sector firms.
- Alternative business objectives of private sector firms include: CSR, market share, satisficing and growth.
- Corporate social responsibility (CSR) is about setting ethical objectives and committing to these goals in order to benefit both internal and external stakeholders.
- Satisficing is an alternative business objective that aims for a satisfactory or sufficient level of profit, due to the sacrifices needed if profit maximization were to be pursued.
- Market share is a measure of the size of a firm by comparing its sales revenue as a percentage of the total sales revenue in the industry (or market).
- Growth is an increase in the size and scale of operations of a firm and is typically measured in terms of sales revenue, market share or profits.

Elasticity of demand – price elasticity of demand (PED)

■ Concept of elasticity (AO1, AO4)

- **Elasticity of demand** refers to how much the demand for a good or service changes following a change in a determinant of demand, such as price or real income.
- Demand is said to be **price elastic** if a change in price or real income leads to a larger percentage change in the demand, that is, demand is sensitive to changes in price (see Figure 7.1).
- By contrast, demand is said to be **price inelastic** if a change in price or real income has little impact on the demand for a product, that is, demand is relatively unresponsive to the change in price or real income (see Figure 7.2).

■ Price elasticity of demand (AO2, AO4)

- **Price elasticity of demand** (PED) measures the degree of responsiveness of quantity demanded for a product following a change in its own price.
- Price elasticity of demand is calculated by using the formula:

$$\frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in price}}$$

or

$$\text{PED} = \frac{\% \Delta Q_D}{\% \Delta P}$$

TOP TIP!

To calculate the percentage change between two numbers, simply use the formula:

$$\frac{\text{New figure} - \text{Old figure}}{\text{Old figure}} \times 100$$

- The value of PED is usually negative due to the law of demand; for example, an increase in the price of a product will tend to cause a fall in the quantity demanded, *ceteris paribus*.
- The value of PED for a good or service depends on the extent to which consumers are able and willing to pay; for example, a rise in the price of a necessity product will have a minimal impact, if any, on the quantity demanded.
- If $\text{PED} < 1.0$, then demand is price inelastic, that is, customers are relatively unresponsive to changes in price (see Figure 7.2) due to the lack of available substitutes at the time. Examples of price inelastic products include salt, electricity, cigarettes, petroleum and nail clippers.
- If $\text{PED} > 1.0$, then demand is price elastic, that is, a change in price causes a larger than proportionate change in the quantity demanded. Examples of price elastic products include the numerous types and brands of soft drinks and candy (confectionery).

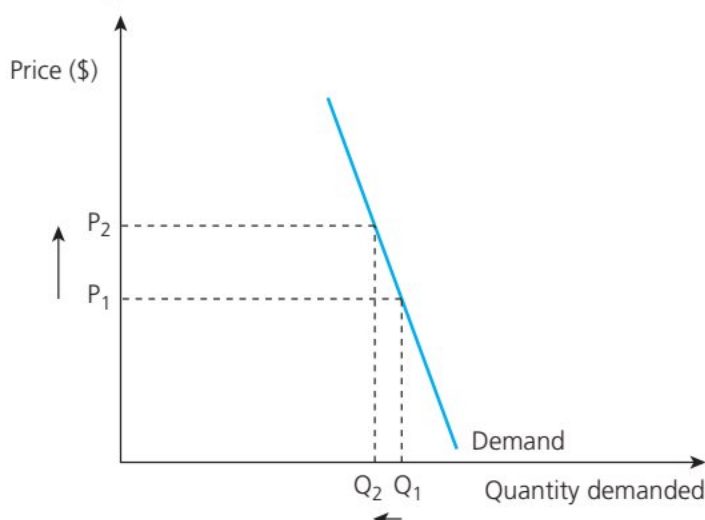
TOP TIP!

Avoid saying that 'price elastic' means that as the price of a product increases, its demand falls, as this describes the *law of demand*. Instead, emphasize that the percentage fall in quantity demanded is greater than the percentage increase in price.

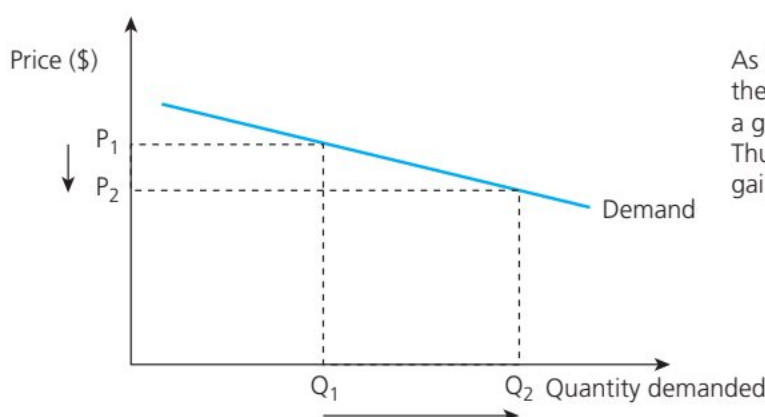
TOP TIP!

It may be helpful to remember that price inelastic demand occurs when consumers are relatively insensitive (unresponsive) to changes in the price of the product.

■ Degrees of PED

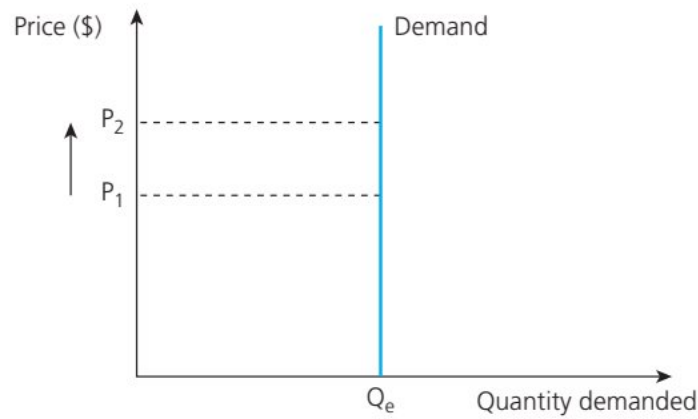


■ **Figure 7.1** The price elastic demand curve



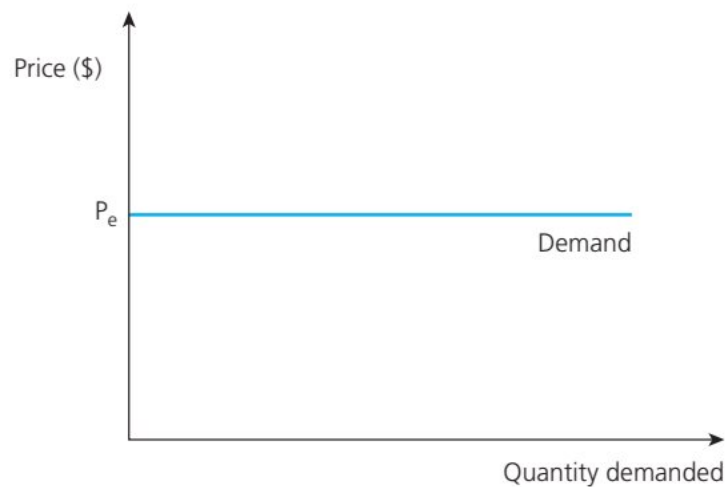
■ **Figure 7.2** The price inelastic demand curve

- **Perfectly price inelastic demand** exists when a change in price has no impact on the quantity demanded, that is, the PED value = 0. This suggests that there are no substitutes for the product (see Figure 7.3).
- **Perfectly price elastic demand** exists when a change in price leads to no demand, that is, the PED value = infinity. This means that customers switch to buying other substitute products if the firm increases its price (see Figure 7.4).
- **Unit elastic demand** occurs when a given price change leads to the same percentage change in the quantity demanded, that is, the PED value = 1.0 (see Figure 7.5).



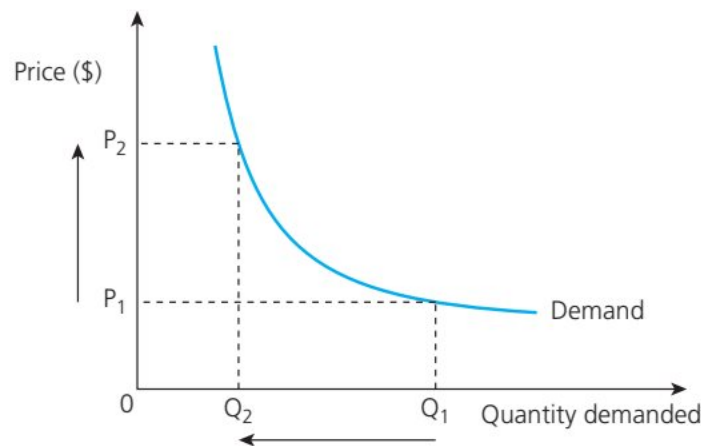
As the price increases from P_1 to P_2 , the quantity demanded remains unchanged at Q_e . This means the quantity demanded will remain the same irrespective of the price. This is a theoretical extreme, although the demand for life-saving drugs (medication), anti-venom, vaccines, veterinary services and water would be close to being perfectly price inelastic.

■ **Figure 7.3** The perfectly price inelastic demand curve



This is another theoretical extreme where demand only exists at a price of P_e . A rise in price above P_e leads to an infinite change in the quantity demanded. This hypothetical situation exists only if there are perfect substitutes that are readily available in the market.

■ **Figure 7.4** The perfectly price elastic demand curve



As the price increases from P_1 to P_2 , the quantity demanded changes by the same proportion, reducing quantity demanded from Q_1 to Q_2 . As the change in demand is proportional to the change in price, there is no change to the firm's overall sales revenue.

■ **Figure 7.5** The unit price elastic demand curve

■ **Table 7.1** Degrees of PED values

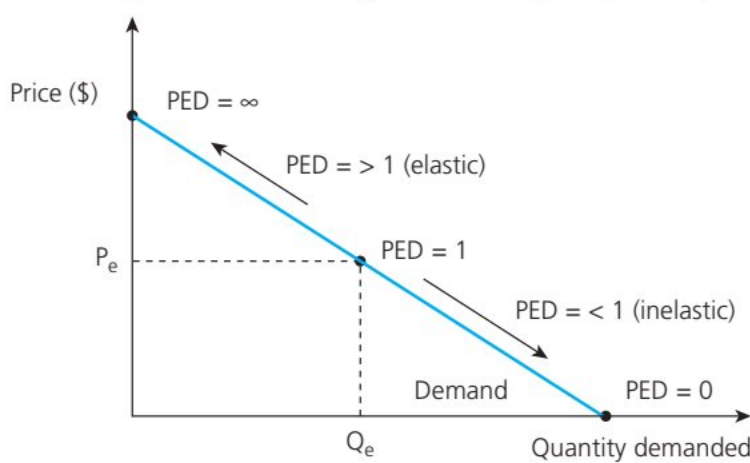
PED value	Degree of PED
$PED < 1$	Price inelastic demand
$PED = 0$	Perfectly price inelastic demand
$PED = \infty$	Perfectly price elastic demand
$PED = 1$	Unitary price elastic demand
$PED > 1$	Price elastic demand

TOP TIP!

Whether the demand for a good or service is price elastic or price inelastic depends on the breadth of definition. Food is generic so relatively price inelastic (due to the lack of substitutes), whereas there are plenty of substitutes for carrots or chocolate cookies.

■ Changing PED along a straight-line downward sloping demand curve (HL only)

- On a normal downward sloping linear demand curve, the value of PED increases as the price level rises (and vice versa). This is because consumers are more responsive (sensitive) to changes in price at higher levels as the price now accounts for a greater proportion of their disposable income.
- Despite the gradient of the linear demand curve being the same, the percentage change in demand is greater at higher prices (see Figure 7.6).



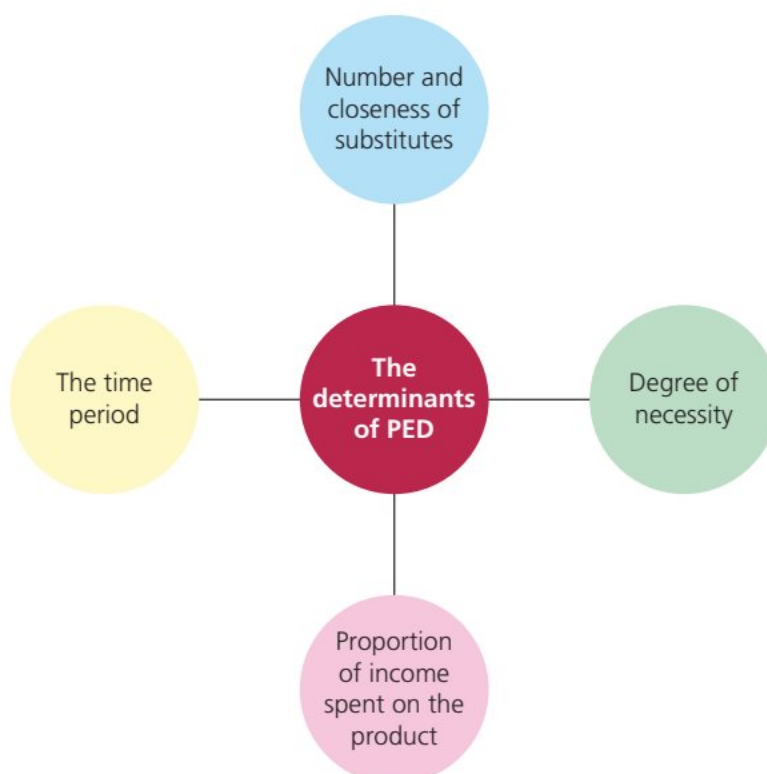
Mathematically, the PED value at the mid-point along a linear demand curve is equal to 1. At prices above this point, $PED > 1$ as consumers become more sensitive to changes in price. By contrast, at lower prices, the PED value will be less than 1 as customers are far less sensitive to fluctuations in the price of the product.

■ **Figure 7.6** PED along a linear demand curve (HL only)

TOP TIP!

It is incorrect to say that a product is 'elastic' or 'inelastic'. Instead, use the correct economic terminology by saying that the product is 'price elastic' or 'price inelastic'. This signifies that PED refers to the degree of responsiveness of quantity demanded to a change in price.

■ Determinants of price elasticity of demand (A02)



■ **Figure 7.7** The determinants of PED

- There are four main determinants of PED: the number and closeness of substitutes, the degree of necessity, the proportion of income spent on the product, and the time period under consideration.
- **Substitution** – the greater the number and availability of close substitutes, and the more competitive their prices are, the higher the value of the PED will tend to be. By contrast, products with few, if any, substitutes (such as private education and prescribed medicines) have price inelastic demand.
- **Necessity** – products that are regarded as essential (such as staple foods, fuel and housing) tend to be price inelastic as households will continue to purchase these even if prices rise. By contrast, the demand for luxury goods and services is relatively price elastic.
- **Income** – the greater the proportion of consumers' income spent on a good or service, the more price elastic demand will be.
- **Time** – people need time to find alternatives and adapt their habits, tastes and preferences. Over time, they can adjust their demand based on more permanent price changes by switching to different products.

TOP TIP!

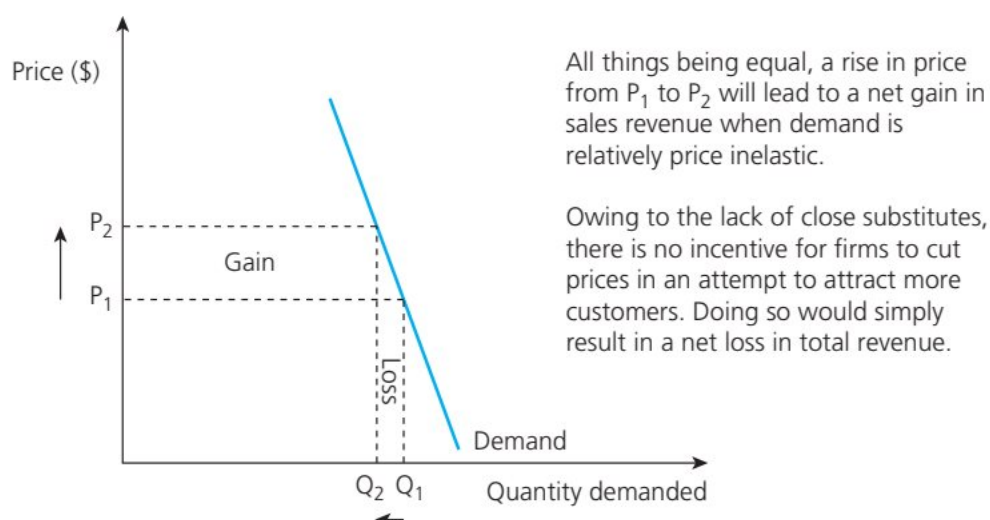
The determinants of price elasticity of demand can be remembered by the acronym **TINS**:

- **T**ime period (the time needed to find and adapt to alternative products)
- **I**ncome (the proportion of income spent on the good or service)
- **N**ecessity (the degree of necessity of the product)
- **S**ubstitution (the number and closeness of available substitutes).

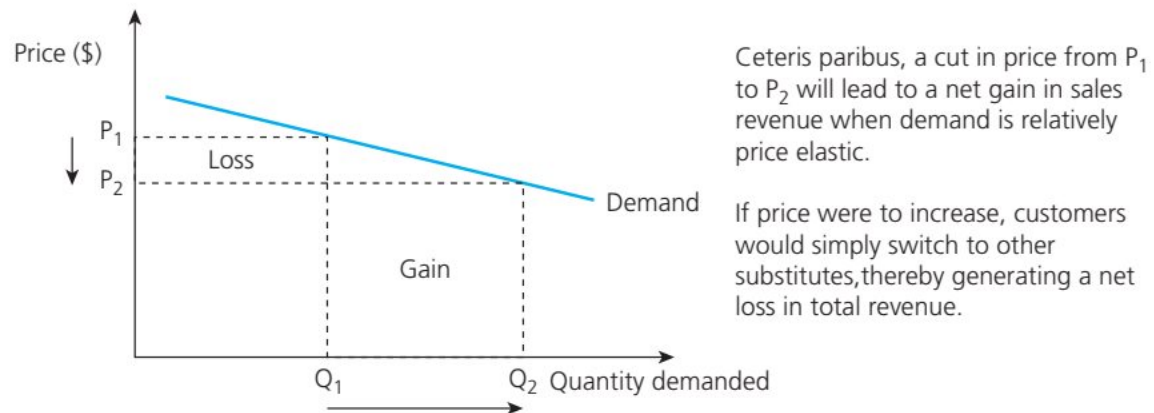
■ Relationship between PED and total revenue (AO2, AO4)

■ **Table 7.2** The relationship between PED and total revenue

Price change	Inelastic	Unitary	Elastic
Increase in price	Total revenue increases	No change in revenue	Total revenue falls
Reduction in price	Total revenue falls	No change in revenue	Total revenue increases



■ **Figure 7.8** Price inelastic demand and total revenue



■ **Figure 7.9** Price elastic demand and total revenue

TOP TIP!

Too often, students state that 'price elastic' means that as the price of a good or service increases, the quantity demanded will fall. This describes the law of demand, that is, as price goes up, quantity demanded will fall irrespective of whether demand is price elastic or price inelastic (see Figure 7.8). Remember, if demand is relatively price elastic, then the *percentage* fall in demand is greater than the *percentage* increase in price.

■ Importance of PED for firms' and government decision-making

- Knowledge of price elasticity of demand is important for firms and governments as it informs decision makers about the effect of price changes on sales revenue.
- Sales revenue is calculated by price multiplied by quantity traded (or $P \times Q$).
- Examples of the importance of PED for firms and government decision makers include:
 - A firm that faces price inelastic demand for its product can increase the price in order to earn more total revenue (see Table 7.2 and Figure 7.8).
 - Similarly, a firm that has price elastic demand for its product can reduce the price to earn more sales revenue (see Figure 7.9).
 - If the PED for a firm's exports is price elastic, it will generally benefit from lower exchange rates (as export prices fall, the firm becomes more price competitive).
 - Firms with different PED values for their products can use price discrimination to charge different customers different prices for essentially the same product; for example, theme parks charge adults higher prices and offer discounts for children, full-time students and the elderly in order to increase their revenues.
 - Governments use PED values to determine taxation policies; for example, imposing hefty taxes on demerit goods, such as cigarettes, knowing that the demand for such goods is highly price inelastic (see Figure 7.2).
 - Firms can also pass on most of the incidence of indirect taxes on products that are highly price inelastic, such as alcohol, tobacco and petroleum.

■ Reasons why the PED for primary commodities is generally lower than the PED for manufactured products (AO2) (HL only)

- The value of PED for primary commodities (raw materials) is relatively low, that is, price inelastic. This is because primary commodities lack close substitutes and/or are essential (necessities) for production. For example, there are few alternatives for coal, crude oil, gold, metal ores and rice.

- Products tend to become more price elastic over time as consumers and firms have more time to find alternatives or substitutes. For example, rising oil prices will eventually mean that car manufacturers will switch to hybrid and electric vehicles. The shorter the time period under consideration, the lower the value of PED.
- By contrast, the demand for manufactured products (such as laptops, books and furniture) is relatively price elastic. This is because most manufactured products have many substitutes; for example, different brands of cars, soft drinks and televisions.
- Manufactured products, such as laptops and furniture, can be used continuously over a long period of time in response to higher market prices, so PED tends to be higher in value.
- Manufactured products, such as motor vehicles and home appliances, take up a larger proportion of consumers' income and therefore demand is relatively price elastic.

TOP TIP!

The concept of price elasticity of demand is fundamental to microeconomics analysis, so this is commonly assessed in the examinations. Therefore, all students must familiarize themselves thoroughly with this topic, including the calculation of PED.

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 7.1

A jeweller reduces the price of her platinum earrings from \$400 to \$350 per unit, resulting in an increase in demand from 25 units to 30 units per month. Calculate the value of the price elasticity of demand for the earrings and comment on the result.

[4 marks]

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 7.2

Assume the demand for football match tickets at \$50 is 50,000 per week. The football club raises its price to \$60 per ticket and quantity demanded subsequently falls to 45,000 per week. Calculate the value of the price elasticity of demand and comment on the result.

[4 marks]

PAPER 1 EXAM PRACTICE QUESTION 7.3

Explain why the value of price elasticity of demand (PED) varies along a linear downward sloping demand curve.

[10 marks]

PAPER 1 EXAM PRACTICE QUESTION 7.4

Explain why the price elasticity of demand (PED) for allergy tablets is likely to differ from the PED for overseas holidays.

[10 marks]

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 7.5

Explain why the price elasticity of demand (PED) for many primary commodities (such as crude oil and iron ore) has a relatively low value while the demand for manufactured products has a relatively high PED value.

[4 marks]

Chapter summary

- **Elasticity of demand** is a measure of how the quantity demanded of a product changes due to a change in a factor that affects demand, such as price or real income.
- **Price elasticity of demand** (PED) measures the degree of responsiveness of quantity demanded for a product following a change in its price, along a given demand curve.
- PED is calculated by using the formula: Percentage change in quantity demanded \div Percentage change in price.
- There are varying degrees of PED:
 - Price inelastic demand ($PED < 1$) occurs when quantity demanded is relatively unresponsive to changes in price (see Figure 7.1), usually due to the lack of substitutes.
 - Price elastic demand ($PED > 1$) occurs when quantity demanded is responsive to changes in price (see Figure 7.2), usually due to the availability of substitutes.
 - Perfectly price inelastic demand ($PED = 0$) exists when a change in price has no impact on the quantity demanded because there are no substitutes for the product (see Figure 7.3).
 - Perfectly price elastic demand ($PED = \infty$) exists when a change in price leads to no demand because customers switch to buying substitutes (see Figure 7.4).
 - Unit elastic demand occurs when a price change leads to the same percentage change in the quantity demanded, so $PED = 1.0$ (see Figure 7.5).
- The four main determinants of PED are:
 - number and closeness of substitutes
 - the degree of necessity
 - proportion of income spent on the good
 - time period.
- Understanding the relationship between PED and total revenue is important as it enables firms to set their prices accordingly. In general, price inelastic demand means a firm can increase sales revenue by raising its price, and the opposite applies to price elastic demand.
- Similarly, knowledge of PED is important to governments as it enables them to set indirect taxes at an appropriate rate.
- In general, the demand for primary commodities is relatively price inelastic ($PED < 1$), while the demand for manufactured products will tend to be price elastic (so $PED > 1$).

Elasticity of demand – income elasticity of demand (YED)

■ Income elasticity of demand (AO2, AO4)

- **Income elasticity of demand (YED)** measures the degree of responsiveness of quantity demanded for a product following a change in real income (individual or household income that has been adjusted for inflation).

- YED is calculated using the formula:

$$\frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in income}}$$

Or in annotation:

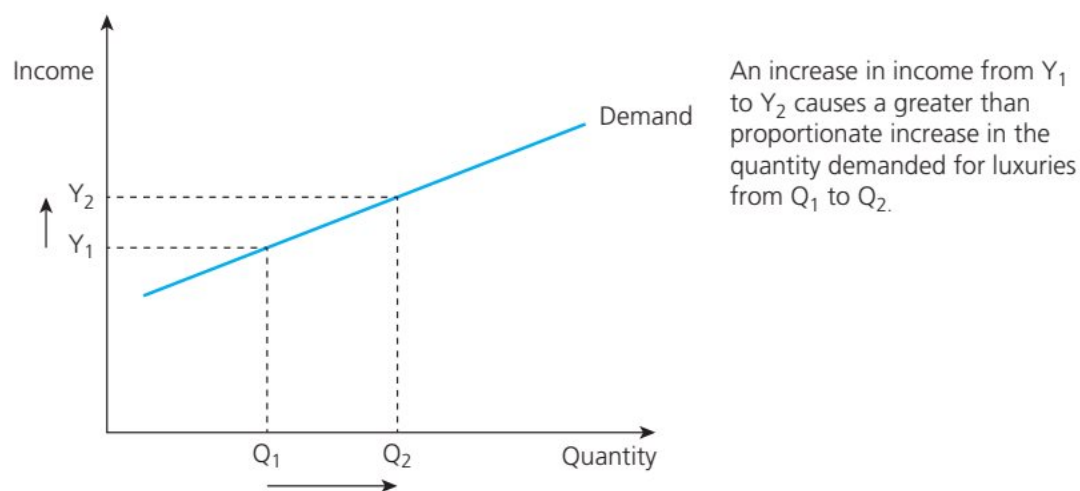
$$\text{YED} = \frac{\% \Delta Q_D}{\% \Delta Y}$$

■ Income elastic demand and income inelastic demand

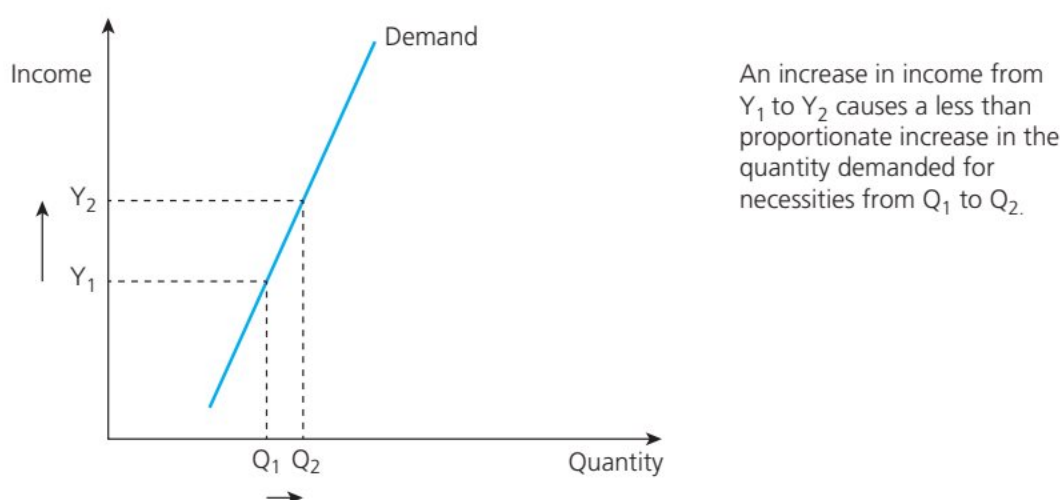
- **Income elastic demand** occurs when the percentage change in the quantity demanded of a product is greater than the percentage change in consumers' real income, that is, $\text{YED} > 1$. This applies to the demand for luxury goods and services.
- **Income inelastic demand** occurs when quantity demanded for a product is relatively unresponsive to a change in consumers' real income, that is, $\text{YED} < 1$. This is because such products are necessities, such as staple foods, toothpaste, toilet tissues and household electricity.

■ Significance of the YED sign

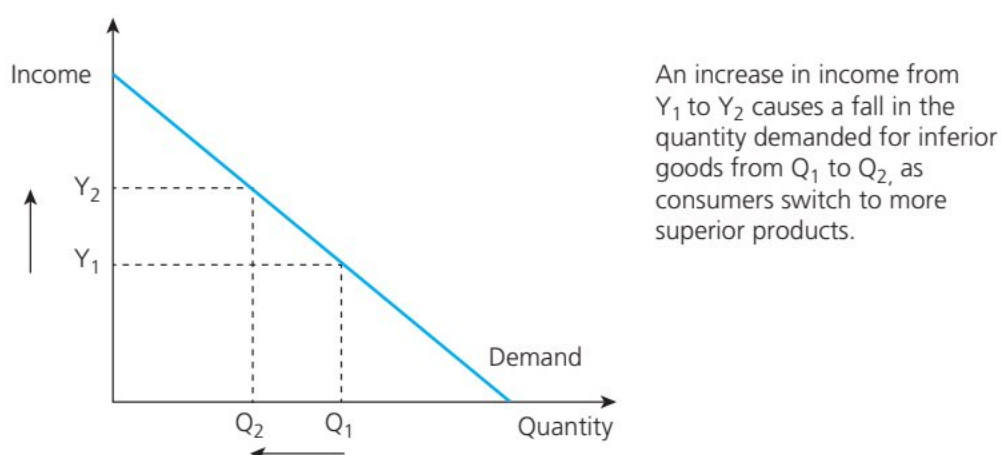
- Normal goods (necessities and luxuries) have a positive YED value because people will tend to buy more of these products as real income levels increase, *ceteris paribus* (see Figure 8.1).
- Necessities have a YED value of between 0 and 1, that is, demand is income inelastic as consumers will continue to buy such essential needs even if real incomes decline or rise (see Figure 8.2).
- Luxuries have a YED value that is greater than 1, that is, demand is income elastic as consumers are relatively responsive to changes in real income when buying superior products.
- Inferior goods have a negative YED value, that is, as real income levels rise, consumers seek alternative products of better quality (see Figure 8.3), such as fresh meats instead of frozen meats.
- Engel curves are used to show the relationship between real income and the quantity demanded for a good or service. Normal goods (services and luxuries) have a positive slope along an Engel curve diagram, whereas inferior goods have a negative slope.
- If demand is income inelastic, a change in real income causes a proportionally smaller change in the demand for a product.



■ **Figure 8.1** The Engel curve for normal goods: luxuries



■ **Figure 8.2** The Engel curve for normal goods: necessities



■ **Figure 8.3** The Engel curve for inferior goods

TOP TIP!

Examples of inferior goods can vary from one country to another. For example, in some countries a bicycle might not be regarded as an inferior good, but it would be classified as a normal good in many others. It is therefore important for students to justify their reasoning.

TOP TIP!

Some students confuse YED with PED in the examinations by stating that demand is income elastic if consumers buy more when the price falls. Although there is an income effect if price falls, YED measures how demand changes following a change in income rather than changes in price.

TOP TIP!

It is incorrect to assume that inferior goods are those that are of poor quality – this is not the meaning of inferior goods. For example, a Honda or Ford car is unlikely to be of poor quality but they are inferior brands to carmakers such as Audi, BMW or Mercedes-Benz. Similarly, these cars are considered inferior to supercars such as Ferrari, McLaren and Lamborghini. Furthermore, both Ford and Honda make their own supercars (the Ford GT and the Honda NSX).

■ Importance of YED (AO3) (HL only)

- Knowledge of YED can help firms and governments to estimate the impact of changes in national income (GDP) on different markets; for example, retailers such as convenience stores and supermarkets might promote more inferior products during a recession.
- By contrast, luxury goods and services are the most affected products during an economic downturn when national income declines. Hence, firms may wish to diversify their output in order to spread risks.
- Primary sector products, such as oil and agricultural output, tend to have a relatively low YED value as they are needed for production. This is potentially beneficial for producers and the economy as demand is relatively stable despite fluctuations in the business cycle.
- Secondary sector output (from the manufacturing sector) has a higher YED value. This means demand is more sensitive to changes in income levels than for primary sector output, mainly due to the availability of substitutes on the market.
- Tertiary sector output (the service sector) has a relatively high YED value, so producers and the economy suffer during an economic recession as consumers are highly responsive to the fall in their real income.

TOP TIP!

It can be difficult to classify certain products as inferior or normal goods. For example, economy class air travel may be considered as a luxury good as it tends to account for a large percentage of the average consumer's income. However, this is relatively cheap (or inferior) to business class or first class air travel (luxury products). The important thing is to demonstrate good reasoning and critical thinking in your answers.

TOP TIP!

While it is not necessary to use the negative coefficient for PED (due to the law of demand), it is vital that students use the negative coefficient of YED when referring to an inferior good (less is bought as real income levels rise) and the positive YED value when referring to normal goods.

PAPER 3 EXAM PRACTICE QUESTION 8.1

Assume the income elasticity of demand (YED) for sausages is -2.5 and that there has been a 3 per cent increase in household incomes.

- a Calculate the percentage change in the demand for sausages. [2 marks]
- b Comment on the value of YED for sausages. [2 marks]

PAPER 1 EXAM PRACTICE QUESTION 8.2

With reference to income elasticity of demand (YED), explain the difference between normal goods and inferior goods.

[10 marks]

Chapter summary

- Income elasticity of demand (YED) measures the degree of responsiveness of quantity demanded following a change in real income.
- Income elastic demand ($YED > 1$) occurs when the percentage change in the quantity demanded is greater than the percentage change in real income, as in the case of demand for luxury goods and services.
- Income inelastic demand ($YED < 1$) occurs when the percentage change in the quantity demanded is less than the percentage change in real income, as in the case of demand for necessity products.
- Normal goods are products that consumers tend to buy more of when their real income rises. They comprise necessities (such as food) and luxuries (such as cars).
- Inferior goods are products with a negative income elasticity of demand, that is, the demand for such products falls when real income levels rise as consumers switch to a superior (luxury) product instead.
- Luxury goods are superior goods and services as their demand is highly income elastic, that is, an increase in real income leads to a proportionately greater increase in the quantity demanded for luxuries.
- Engel curves are used to demonstrate the relationship between income and the quantity demanded. Normal goods (services and luxuries) have a positive slope along an Engel curve diagram, whereas inferior goods have a negative slope.
- Knowledge of YED is important for understanding sectoral change as an economy grows. Normally, economic growth results in a country moving from reliance on primary sector output to secondary and then tertiary sector output.

Elasticity of supply

■ Price elasticity of supply (AO2, AO4)

- **Price elasticity of supply** (PES) measures the degree of responsiveness of quantity supplied of a product following a change in its price.
- PES is calculated by using the formula:

$$\frac{\text{Percentage change in quantity supplied}}{\text{Percentage change in price}}$$

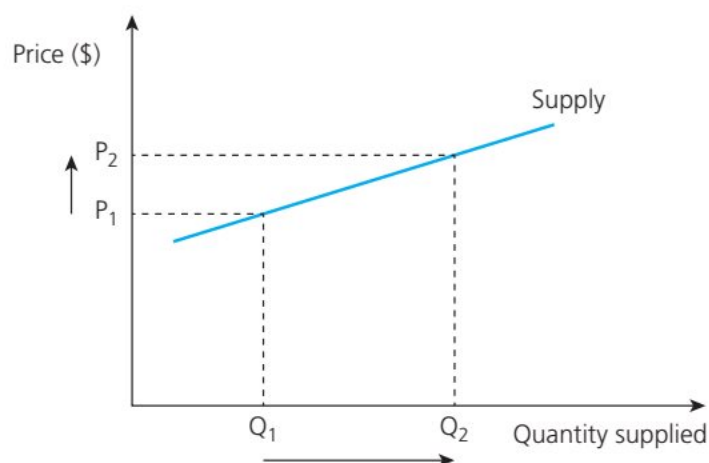
Or in annotation:

$$\frac{\% \Delta Q_s}{\% \Delta P}$$

- The value of PES is always positive due to the law of supply, that is, there is a positive correlation between a change in price and the quantity supplied.
- Supply is price elastic if firms can quite easily increase quantity supplied without a time delay if there is an increase in the price of the product, as in the case of mass-produced goods such as carbonated soft drinks.
- Such firms can gain a competitive advantage as they are able to respond quickly to changes in the market price.
- By contrast, supply is price inelastic if firms find it difficult to change production in a given time period following a change in the market price. For example, organic fruits take a long time to grow, so quantity supplied is relatively unresponsive to changes in the market price.

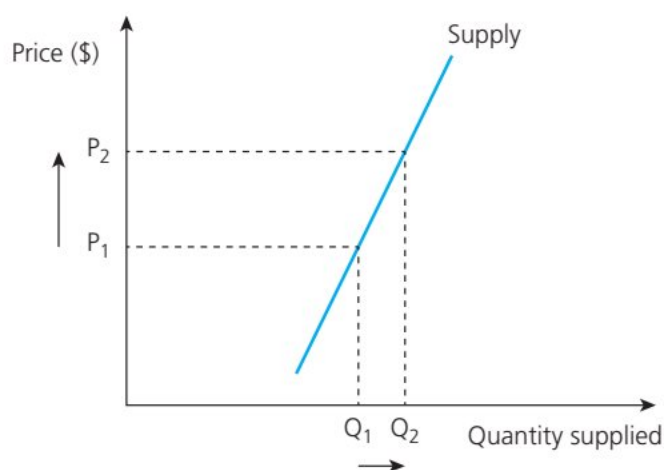
■ Degrees of PES

- If $PES > 1.0$, then supply is price elastic, that is, relatively responsive to changes in price (see Figure 9.1).
- If $PES < 1.0$, then supply is price inelastic, that is, relatively unresponsive to changes in price (see Figure 9.2).
- If $PES = 0$, then supply is perfectly price inelastic, that is, a change in price has no impact on the quantity supplied as there is no spare capacity to raise output (see Figure 9.3). An example is a sports stadium or a concert hall as these cannot accommodate more than the seating capacity.
- If $PES = \infty$ (infinity), supply is perfectly price elastic, that is, supply can change without any corresponding change in price due to the spare capacity that exists at the current price (see Figure 9.4). For example, Duracell might have a huge stock of batteries, so any increase in demand will simply result in more Duracell batteries being sold, without the need to raise price.
- If $PES = 1$, supply has unitary price elasticity, that is, the percentage change in the quantity supplied matches the percentage change in price (see Figure 9.5).



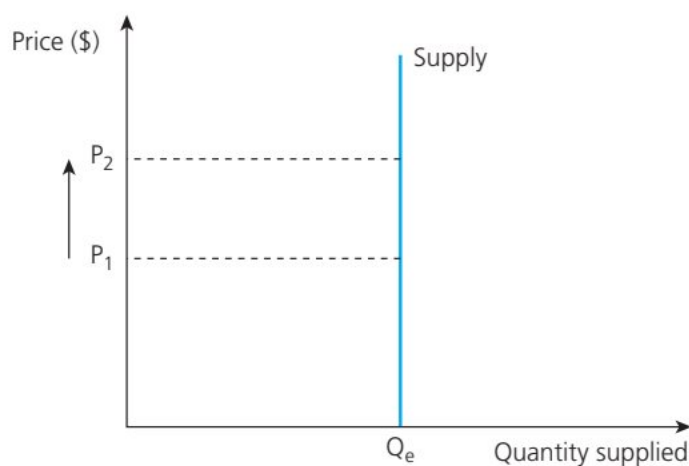
If price increases from P_1 to P_2 , there is enough spare capacity for the firm so that quantity supplied can increase by a greater proportion from Q_1 to Q_2 .

■ **Figure 9.1** Price elastic supply



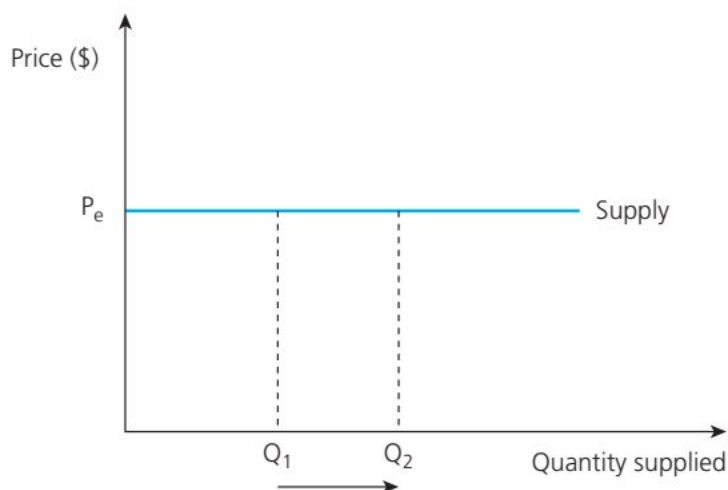
If price increases from P_1 to P_2 , there is minimal spare capacity so the quantity supplied can only rise by a smaller proportion from Q_1 to Q_2 .

■ **Figure 9.2** Price inelastic supply



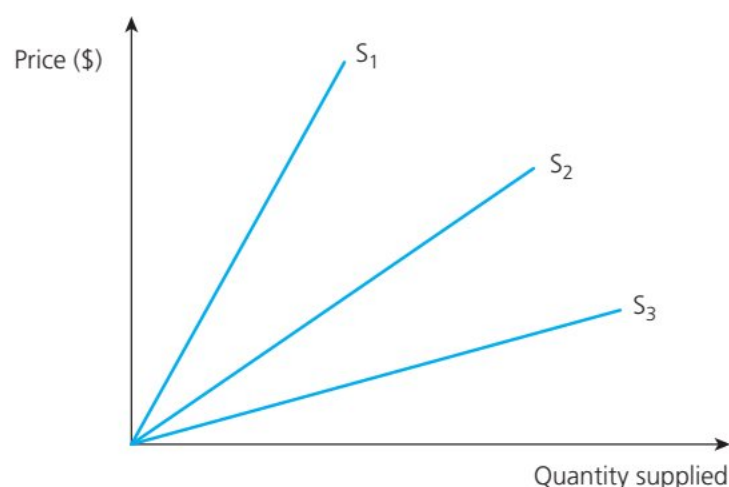
Supply is perfectly price inelastic at Q_e . Irrespective of any change in price, firms can only supply a maximum of Q_e . Hence, price changes have no impact on the quantity supplied, so $PES = 0$.

■ **Figure 9.3** Perfectly price inelastic supply



Supply is perfectly price elastic at a price of P_e . Since the quantity supplied can increase from Q_1 to Q_2 without the need for higher prices, $PES = \infty$.

■ **Figure 9.4** Perfectly price elastic supply



Any supply curve that starts at the origin (such as S_1 , S_2 or S_3) has a $PES = 1$. This theoretical possibility means that a change in price causes the same percentage change in the quantity supplied.

■ **Figure 9.5** Unit price elasticity supply

■ **Table 9.1** Degrees of PES values

PES value	Degree of PES	Diagram (PES along a supply curve)
$PES > 1$	Price elastic supply	Relatively elastic supply
$PES < 1$	Price inelastic supply	Relatively inelastic supply
$PES = 0$	Perfectly price inelastic	Constant PES – perfectly inelastic
$PES = \infty$	Perfectly price elastic	Constant PES – perfectly elastic
$PES = 1$	Unitary price elastic supply	Constant PES – unitary PES

TOP TIP!

Students often state that price elastic supply means that as the price of a good or service goes up, supply also rises.

However, as the price of a product goes up, supply will rise, *ceteris paribus* – irrespective of whether supply is price elastic or price inelastic (this is simply the ‘law’ of supply).

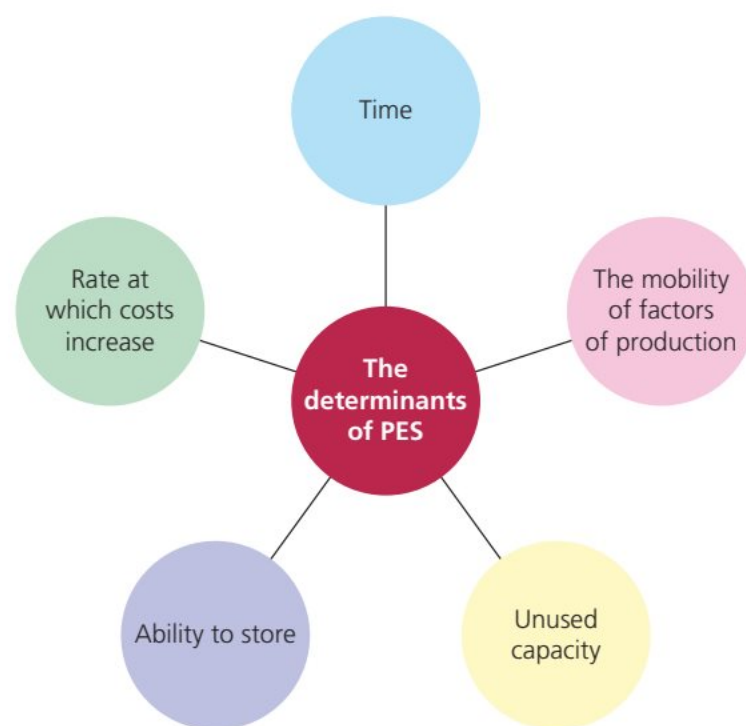
With price elastic supply, the *percentage* increase in quantity supplied is greater than the *percentage* increase in price.

■ Determinants of PES (AO2)

There are five main determinants of price elasticity of supply: (1) time, (2) mobility of factors of production, (3) unused capacity, (4) the ability to store (inventory) and (5) the rate at which costs increase (see Figure 9.6).

- 1 Time** – Supply tends to be price inelastic in the short run, for example, the supply of fresh vegetables is dependent on the time it takes to harvest the products. In the long run, firms can adjust production levels according to price changes in the market.
- 2 Mobility of factors of production** – This refers to the degree of ease and the cost of factor substitution. The easier it is to substitute factors of production (such as labour and capital), the more price elastic supply tends to be. Similarly, the more mobile factors of production are, the greater the PES will be, *ceteris paribus*.
- 3 Unused capacity** (the degree of spare productive capacity) – A firm with plenty of spare capacity can increase supply with relative ease (without increasing its costs of production). Hence, supply is relatively price elastic.

- 4 **The ability to store** – Firms with high inventories (stocks of unused raw materials, work-in-progress and finished goods) tend to have relatively price elastic supply as they are more able to respond quickly to a change in the market price.
- 5 **The rate at which costs increase** (marginal costs) – If a firm can increase output without the marginal costs of production rising at a faster rate, supply is relatively price elastic, and vice versa.



■ **Figure 9.6** The determinants of price elasticity of supply for a firm

TOP TIP!

There are several ways firms can improve the value of their PES:

- create spare capacity
- keep larger volumes of stocks (inventories)
- improve storage systems to prolong the shelf-life of products
- adopt or upgrade to the latest technology
- improve distribution systems (how the products get to the customers)
- develop and train employees to improve their labour occupational mobility (in order to perform a range of jobs).

■ PES for primary commodities and manufactured products (AO2) (HL only)

- The PES for primary products is relatively low due to the comparatively long time it takes to increase primary sector output, such as oil (petroleum), iron, coal and agricultural output.
- By contrast, the PES for manufactured products is generally higher as many of these can be mass-produced in shorter time periods, for example, toothpicks, carbonated soft drinks, screws and LEGO toy bricks.
- The additional cost (marginal costs) of supplying an extra unit of mass-produced and identical goods is extremely low. Hence, supply is price elastic. However, in the primary sector, it is not so simple to produce an extra unit of iron ore or organic vegetables, for example.

- Capital-intensive output in the manufacturing sector means it is relatively easy to increase output, whereas production tends to be land-intensive or labour-intensive in the primary sector, so this makes it more difficult to increase output in response to changes in the market price.

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 9.1

Calculate the value of price elasticity of supply (PES) if the market price of beans increases from \$2 per kilogram to \$2.20 per kilogram and causes quantity supplied to increase from 10,000 kilograms to 10,500 kilograms per time period.

[2 marks]

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 9.2

Angry Birds is a highly popular video game created by Finnish company Rovio, with more than 12 million customers having paid \$0.99 each to download the game from Apple's App Store. Using an appropriate demand and supply diagram, explain why the high level of demand for *Angry Birds* games has no effect on the selling price of the popular video game.

[4 marks]

Chapter summary

- Price elasticity of supply (PES) measures the degree of responsiveness of quantity supplied of a product following a change in its price.
- PES is calculated by using the formula: $\text{Percentage change in quantity supplied} \div \text{Percentage change in price}$.
- The value of PES is always positive due to the law of supply.
- Supply is price elastic ($\text{PES} > 1.0$) if firms can quite easily increase quantity supplied in response to an increase in the price of the product.
- Supply is price inelastic ($\text{PES} < 1.0$) if firms find it difficult to change production in a given time period following a change in the market price.
- If $\text{PES} = 0$ then supply is perfectly price inelastic, that is, a change in price has no impact on the quantity supplied.
- If $\text{PES} = \infty$ then supply is perfectly price elastic, that is, supply can change without any corresponding change in price.
- If $\text{PES} = 1$ then supply is unit price elastic, that is, the percentage change in the quantity supplied is equal to the percentage change in price.
- The five determinants of PES are (1) time, (2) mobility of factors of production, (3) unused capacity, (4) ability to store and (5) rate at which costs increase.
- The PES for primary products is relatively low ($\text{PES} < 1.0$) due to the comparatively long time it takes to increase primary sector output.
- The PES for manufactured products is generally higher ($\text{PES} > 1.0$) as these goods can often be mass-produced in shorter time periods.

■ Reasons for government intervention in markets (AO2)

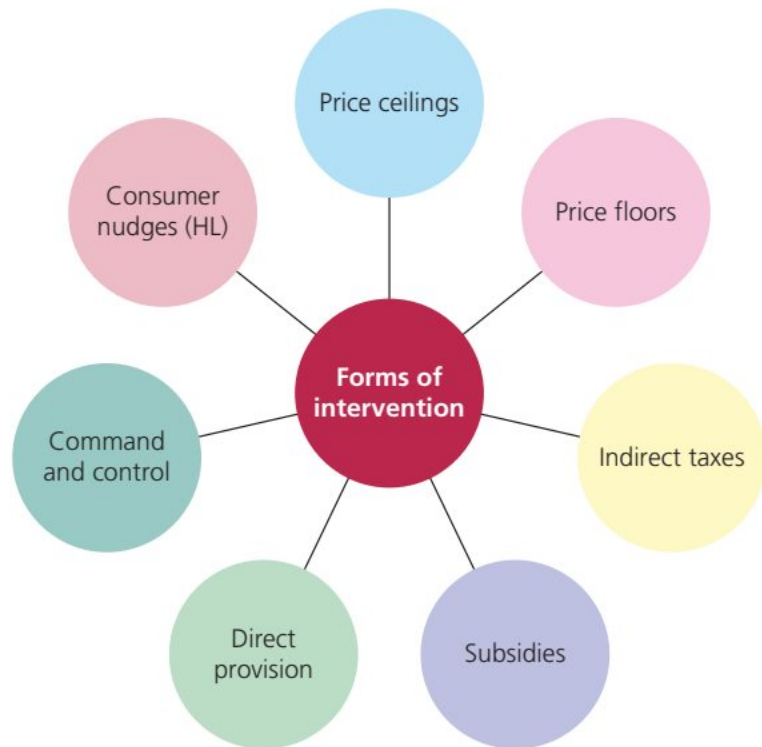
- Government intervention in markets arises when the free market (price mechanism) is unable to satisfy important economic objectives or to allocate resources in a socially desirable way.
 - The main reasons for government intervention in markets are to: (1) earn government revenue, (2) support firms, (3) support households on low incomes, (4) influence the level of production, (5) influence the level of consumption, (6) correct market failure and (7) promote equity.
- 1 Earn government revenue – The government needs to raise revenue to fund its expenditure in order to achieve its objectives, such as to correct market failures, to redistribute income and wealth, and to influence the level of economic activity.
 - 2 Support firms – Intervention to provide support for firms can take many forms, such as tax concessions, subsidies, trade protection (from the threat of foreign competition), business development loans, research and development funding and financial bailouts.
 - 3 Support households on low incomes – Intervention is required to tackle the economic and social problems of inequalities in income and wealth distribution caused by unregulated free market economies. Appropriate intervention can help to promote equity to households on low incomes and to help eradicate absolute poverty.
 - 4 Influence the level of production – Regulation and taxation policies, for example, are used to limit the output of goods that create negative externalities, such as the production of tobacco products, alcoholic drinks and gambling services. Intervention is also required to provide sufficient merit goods for society as a whole. Examples include the provision of education and healthcare services.
 - 5 Influence the level of consumption – Regulation and indirect taxes, for example, are used to reduce the consumption of demerit goods such as alcoholic beverages, sugary drinks, tobacco products, recreational drugs, single-use plastics and fast food.
 - 6 Correct market failure – Intervention also takes place to address market imperfections, inequities and inefficiencies, such as potential abuse of monopoly power and anti-competitive practices. Intervention also takes place to ensure adequate provision of public goods and merit goods, such as street lighting, infrastructure, research and development, healthcare and education.
 - 7 Promote equity – Market economies typically face unequitable distribution of income due to the natural unequal ownership of factors of production. Free market economists argue that inequities are necessary to create incentives to work. Nevertheless, governments intervene in markets to promote greater degrees of equity in the distribution of income and wealth.

TOP TIP!

Would MORE CBL (concept-based learning) help you to remember the reasons for government intervention in markets? A useful way is the acronym **MORE CBL**: **M**arket failure, **O**utput (production), **R**evenues, **E**quity **C**onsumption, **B**usinesses (firms) and **L**ow-income households.

■ Main forms of government intervention in markets (AO2, AO4)

The main forms of government intervention in markets are: (1) price controls, that is, price ceilings (maximum prices) and price floors (minimum prices), (2) indirect taxes and subsidies, (3) direct provision of services, (4) command and control regulation and legislation, and (5) consumer nudges (HL only).



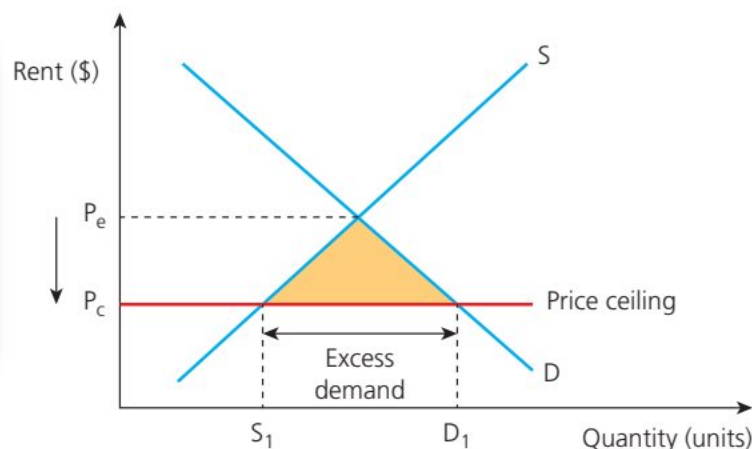
■ Price controls (AO2, AO4)

- **Price controls** are government regulations that set a maximum price (price ceiling) or minimum price (price floor) on certain goods and services.
- A **price ceiling** limits the maximum price of a particular product in order to ensure it is affordable for as many consumers as possible. A maximum price is set below the market equilibrium price to protect consumers from escalating prices, such as increasing food prices or rents in the residential property market (see Figure 10.2).

■ **Figure 10.1** The main forms of government intervention in markets

TOP TIP!

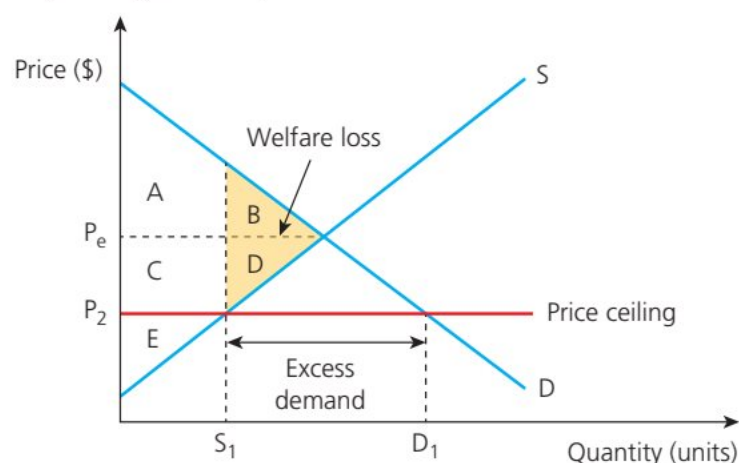
For a price ceiling to be effective, the maximum price must be set *below* the free market equilibrium price.



A price ceiling (P_c) is imposed to control residential rents, but this results in more demand (D_1) than supply (S_1). This causes excess demand at all prices below the equilibrium price (P_e). The shortage is made up by the government supplying social housing at a price of P_c to stabilize residential rents in the economy. Rent controls are used to protect tenants from rising rental charges in an unsustainable way.

■ **Figure 10.2** Impacts of a price ceiling on the residential rental property market

- Although consumers can gain from a lower price, maximum prices can also distort market forces and therefore can result in an inefficient allocation of scarce resources (see Figure 10.3).



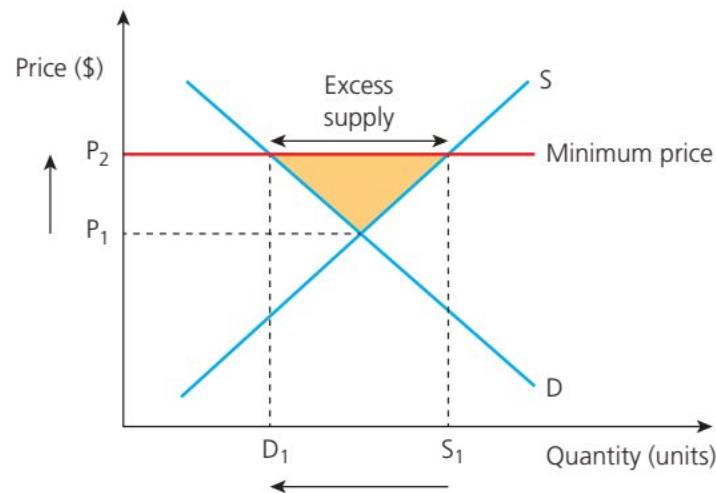
Consumer surplus was originally area $A+B$, and producer surplus was area $C+D+E$. The imposition of the maximum price of P_2 reduces the quantity supplied to S_1 , thereby creating excess demand. This changes consumer surplus to area $A+C$ and reduces producer surplus to area E , so there is a welfare loss of $B+D$.

■ **Figure 10.3** The welfare loss of a price ceiling

TOP TIP!

For a price floor to be effective, it must be set at a price higher than the free market equilibrium price in order to stimulate an increase in quantity supplied.

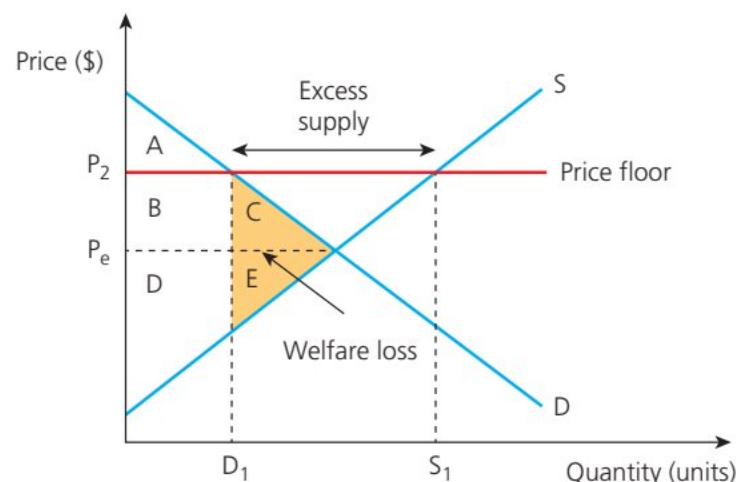
- By contrast, a **price floor** sets a legal minimum price in order to encourage supply of a particular product (see Figure 10.4), such as agricultural produce.
- The purpose of setting a price floor is to protect producers of a certain good or service, such as legislating the lowest hourly wage rate that employers must pay their workers.



A guaranteed minimum price (of P_2) is offered to agricultural farmers, which gives them an incentive to supply more (S_1) than is demanded (D_1) at the higher price. This causes excess supply at all prices above P_e . The surplus is either stored as excess inventory or gets bought by the government (at the minimum price) to support the farmers. The surplus is then released onto the market during bad harvests which helps to stabilize food prices.

■ **Figure 10.4** Consequences of a price floor

- Although producers receive a higher price, the imposition of a minimum price also distorts market forces, which results in an inefficient allocation of resources (see Figure 10.5).



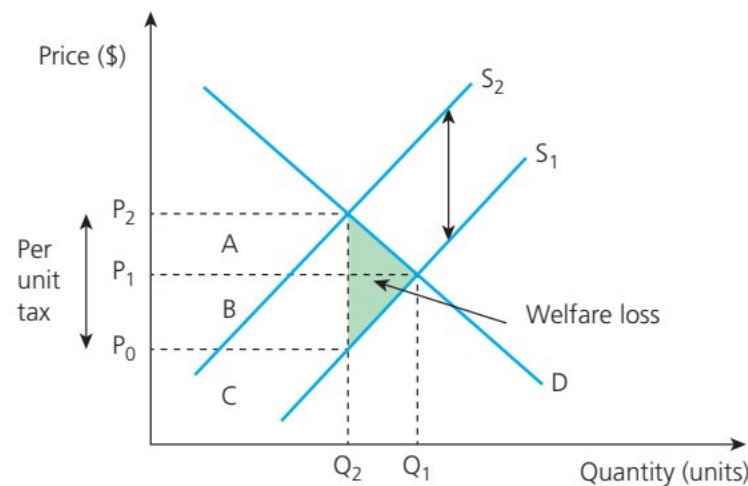
Consumer surplus was originally area $A+B+C$, and producer surplus was area $D+E$. The imposition of the price floor of P_2 reduces the quantity demanded to D_1 , thereby creating excess supply. This reduces consumer surplus to area A and reduces producer surplus to area $B+D$, so there is a welfare loss of $C+E$.

■ **Figure 10.5** Welfare loss of price floors

■ Indirect taxes and subsidies (A02, A04)

- An **indirect tax** is a government charge on the sale of certain goods and services to raise revenue and/or to discourage production and consumption.
- Indirect taxes are imposed on producers (suppliers), thereby raising production costs, although at least some of the charges are usually passed on to consumers (in the form of higher prices).
- Indirect taxes can be categorized as either:
 - a **specific tax** – a per unit tax. Such taxes are indiscriminate as the tax per unit is fixed, so they are easier to calculate and administer
 - an **ad valorem** – a percentage tax on the value of a good or service. Such taxes impose a larger amount of tax based on the price of the product.
- Governments often impose indirect taxes on demerit goods. For example, many countries impose indirect taxes to discourage the excess consumption of products such as sugary drinks, petrol, fast foods, tobacco and alcohol.

- Indirect taxes are a major source of government revenue. The government will often intervene if the free market fails to establish a socially optimal equilibrium. In macroeconomics, indirect taxes can be used to influence the level of aggregate demand by changing the rate of sales taxes, for example.
- Specific taxes cause a parallel shift of the supply curve to the left (see Figure 10.6), whereas ad valorem taxes pivot the supply curve (see Figure 10.7). In both cases, the impact is a higher market price and lower quantity demanded.



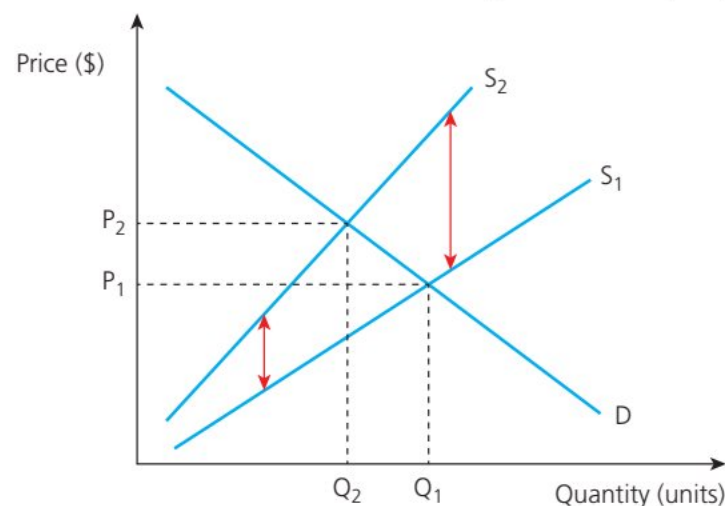
The specific tax causes a parallel shift in the supply curve from S_1 to S_2 . The higher cost of production causes an increase in the market price from P_1 to P_2 and reduces the quantity demanded from Q_1 to Q_2 . The vertical distance between S_1 and S_2 is the value of the specific tax. Customers pay P_2 and purchase Q_2 units of output.

■ **Figure 10.6** The imposition of a specific tax (per unit tax)

TOP TIP!

Students often state that indirect taxes cause a shift in the *demand* curve as the tax reduces the ability and willingness of consumers to pay. This is true in the case of direct taxes, but remember that indirect taxes are imposed on producers, so cause an inward shift of the *supply* curve.

- Rectangular area A+B represents the total amount of tax revenue collected by the government. Area A is paid by consumers (in the form of higher prices) and area B is absorbed by producers. Area C represents the revenue received by firms.
- Consumers tend to lose out from indirect taxes as they must pay higher prices, especially if the price elasticity of demand (PED) is relatively low. Producers also lose as their costs of production increase. Hence, indirect taxes create a welfare loss (the combined loss of consumer and producer surplus).



An ad valorem tax causes a pivotal shift in the supply curve from S_1 to S_2 , raising the price from P_1 to P_2 and causing a contraction in the quantity demanded from Q_1 to Q_2 . The absolute amount of the tax is greater if the price increases (indicated by the vertical arrows).

■ **Figure 10.7** The imposition of an ad valorem tax (percentage tax rate)

TOP TIP!

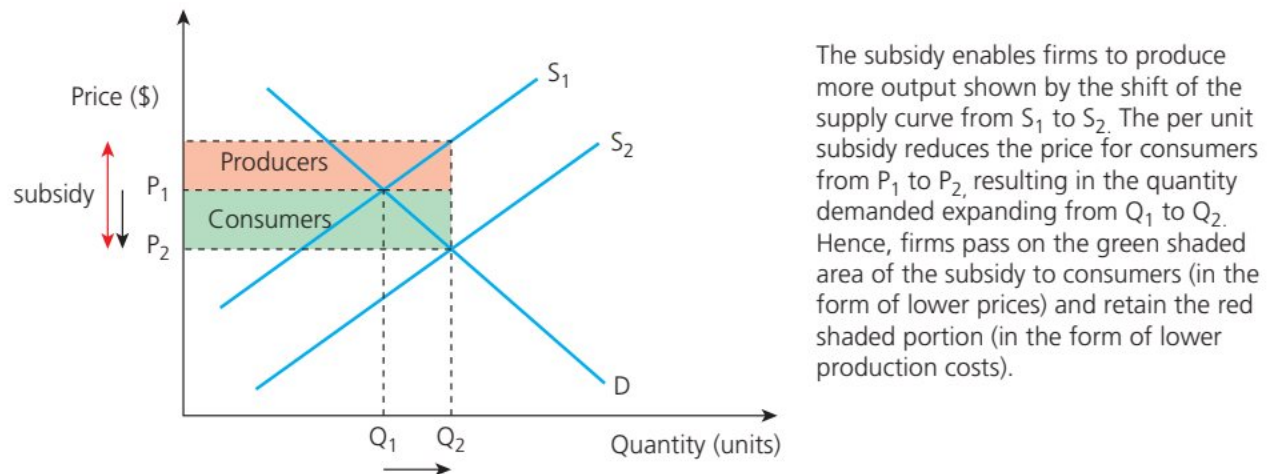
The incidence of tax falls mainly upon the stakeholder group (consumers or producers) that is less responsive to changes in price.

TOP TIP!

The effectiveness of indirect taxes depends on the concepts of price elasticity of demand (PED). A greater portion of the incidence of tax falls on consumers if the PED is low, that is, there is a lack of substitutes because firms can pass on most of the higher costs to consumers. The opposite is true when demand is price elastic because customers are highly responsive to any increase in price.

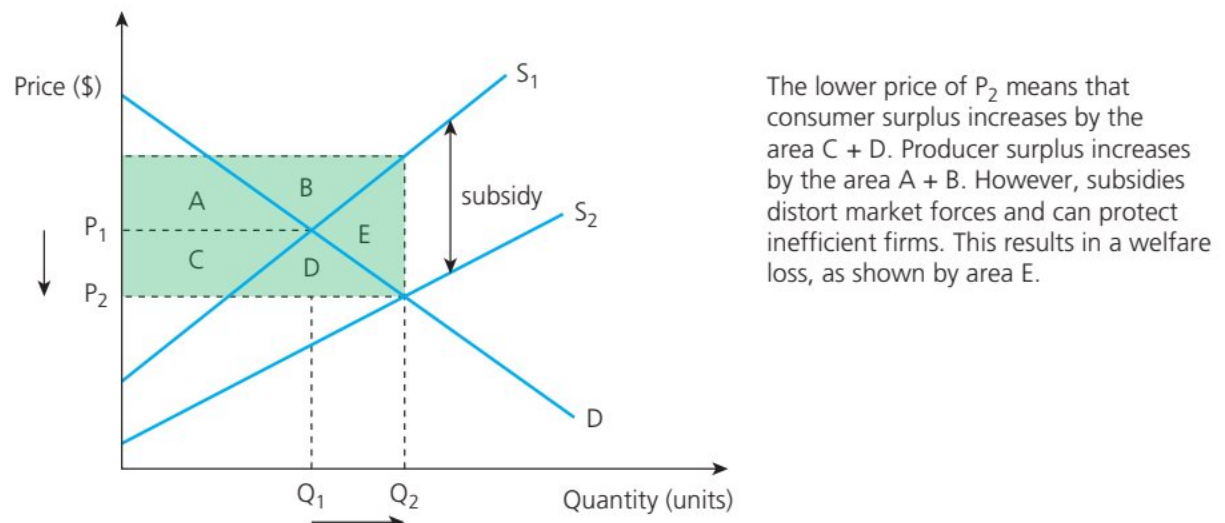
■ Subsidies

- **Subsidies** are a form of financial assistance from the government to reduce the burden of stakeholders in targeted markets. As they reduce the costs of production for firms, the supply curve shifts outwards to the right (see Figure 10.8).
- They are used to encourage output and to reduce the costs of supplying certain products, thereby keeping down the cost of living. They are also used to offset market failures in order to achieve greater efficiency.



■ **Figure 10.8** Subsidies and market outcomes

- Consumers generally benefit from subsidies due to the increase in consumer surplus from the lower price. Producers also gain from the subsidy as their production costs are reduced, thereby improving their competitiveness and profitability (see Figure 10.9).
- The main limitations of subsidies as a form of government intervention are: (1) it can be expensive to subsidize certain businesses and industries, (2) they can limit or reduce incentives for firms to cut costs or to be more competitive, and (3) there are opportunity costs in using tax revenues in this way.



■ **Figure 10.9** Social impacts of subsidies

■ Direct provision of services (A02)

- The free market under-provides and under-consumes both merit goods and public goods. To solve this market failure, the government may decide to directly provide such goods and services. This is known as **direct provision**.
- Examples of direct provision of services by the government include primary and secondary education, public healthcare services, postal services, sewage and sanitation systems, national defence and security, and public broadcasting services.
- Direct provision is funded mainly by government tax revenues.

TOP TIP!

Direct provision does not mean that a good or service is necessarily provided free of charge. Despite the product being funded by the government, it may still choose to charge a price for it. In reality, the price would be significantly lower than if for-profit private sector firms were to be involved.

■ Command and control regulation and legislation (AO2)

- **Command and control (CAC) regulation and legislation** refers to the direct rules or laws governing business activity, stating what is permitted and what is illegal. For example, there are minimum age laws for the purchase of alcoholic and tobacco products. CAC methods can be used to correct market imperfections and market failure in the efficient allocation of resources.
- However, CAC regulation and legislation can be expensive and time consuming to implement. For example, environmental standards might require firms to change their processes, which increases their production costs, reduces their competitiveness and profitability, and therefore possibly leads to job losses.



■ **Figure 10.10** Using highly visible speed warning systems helps to prompt safer driving

- Furthermore, CAC policies are rather inflexible and apply to all firms in the regulated industry. They do not draw any distinction between large multinational firms that would find it relatively easy and inexpensive to meet these standards and smaller firms that are likely to struggle with the compliance costs.
- ### ■ Consumer nudges (AO2) (HL only)
- A final form of government intervention in markets is the use of consumer nudges. Nudges are created by choice architects who use small prompts or tweaks to alter social and economic behaviour.
 - Nudges are subtle ways of making it easier for consumers to make certain decisions, but without taking away people's ability to choose.
 - For example, retailers often use upselling as consumer nudges, that is, offering extra options, such as extra-large French fries in a fast-food restaurant or a pastry item when buying a drink at a coffee shop. The government also uses nudges to encourage motorists to drive more carefully.

■ Government intervention in markets – consequences for markets and stakeholders (AO3)

- Government intervention takes place when markets are inefficient in allocating resources and in order to deal with market inequities, such as through the use of price controls, regulation and legislation, taxation and subsidies.
- The consequences for markets and stakeholders due to government intervention in markets are summarized in Table 10.1.
- The law of unintended consequences means that government intervention does not always go according to plan or the way that economic theory predicts.

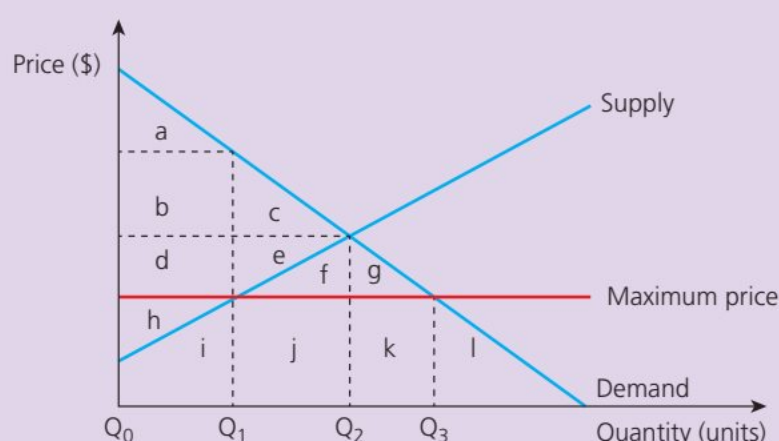
■ Table 10.1 Government intervention and consequences for markets and stakeholders

Government intervention	Impact on markets		Impact on stakeholders		
	Price	Output	Consumers	Firms	Government
Price ceilings (maximum price)	Lower than free market equilibrium	Excess demand (shortage)	Increase in consumer surplus	Decrease in producer surplus	Supply goods and services to match the shortage
Price floors (minimum price)	Higher than free market equilibrium	Excess supply (surplus)	Decrease in consumer surplus	Increase in producer surplus	Buy goods and services to eliminate the surplus
Indirect taxation	Higher than free market equilibrium	Decrease in quantity demanded	Decrease in consumer surplus; tax incidence depends on price elasticity of demand (PED)	Decrease in producer surplus; lower profitability	Increase in tax revenues, although this depends on the value of PED
Subsidies	Lower than free market equilibrium	Increase in quantity demanded	Increase in consumer surplus; subsidy incidence depends on PED	Increase in producer surplus; higher profitability	Increase in government spending to finance the subsidies

TOP TIP!

Note that government intervention is not always successful. Government failure arises when the cost of attempting to prevent or correct market imperfections or distortions turns out to be greater than the social costs of the original market failure itself.

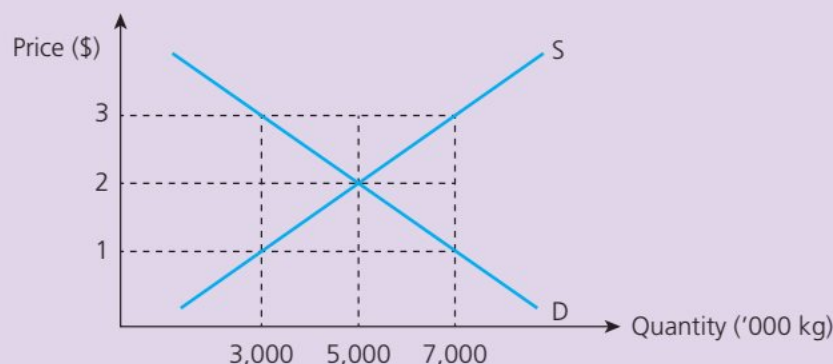
PAPER 3 EXAM PRACTICE QUESTION 10.1 (HL ONLY)



With reference to the above diagram, identify the following:

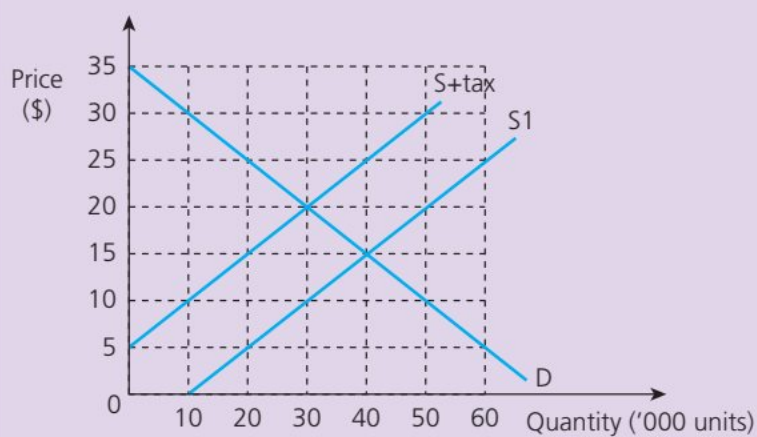
- The change in consumer surplus following the imposition of the price ceiling. [1 mark]
- The change in producer surplus after imposition of the price ceiling. [1 mark]
- The change in the firm's sales revenue. [1 mark]
- The shortage in the market. [1 mark]

PAPER 3 EXAM PRACTICE QUESTION 10.2 (HL ONLY)



Refer to the diagram below, which shows the market for oranges, and answer the questions that follow.

- Explain what situation arises if the government imposes a price floor of \$3 for the oranges. [2 marks]
- Calculate the change in consumer spending following the imposition of the price floor. [2 marks]
- Calculate the change in producer revenue following the imposition of the price floor. [2 marks]
- Suppose the government exports all the excess supply at \$2 per unit. Calculate the amount of taxpayers' money needed to support this price control scheme for oranges. [2 marks]

PAPER 3 EXAM PRACTICE QUESTION 10.3 (HL ONLY)

Refer to the diagram below and answer the questions that follow.

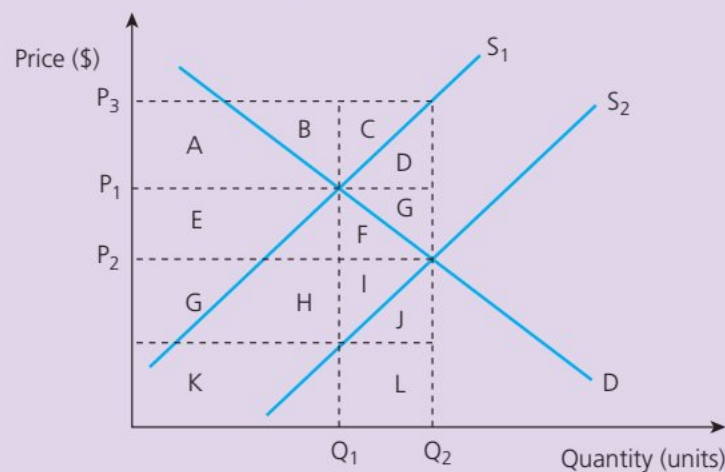
- Calculate the total incidence of tax paid by producers. [2 marks]
- Calculate the total tax revenue collected by the government. [2 marks]
- Calculate the change in consumer spending following the imposition of the tax. [2 marks]
- Calculate the welfare loss resulting from the imposition of the indirect tax. [2 marks]
- Calculate the value of the producer surplus after the imposition of the tax. [2 marks]
- Calculate the change in the value of consumer surplus after the tax has been imposed. [2 marks]

PAPER 1 EXAM PRACTICE QUESTION 10.4

Explain **two** ways in which a government can intervene in markets to influence the price of a certain good or service. [10 marks]

PAPER 2 EXAM PRACTICE QUESTION 10.5 (HL ONLY)

The diagram below shows the market for allergy tablets following a government subsidy being approved for producers.



- Define the term *subsidy*. [2 marks]
- Use the diagram to determine the area that represents the total amount of money spent by the government on subsidizing the producers of allergy tablets. [2 marks]
- Use the diagram to determine the area that represents the incidence of the subsidy retained by the producers. [2 marks]

Chapter summary

- The main reasons for government intervention in markets, in order to influence market outcomes, are to: (1) earn government revenue, (2) support firms, (3) support households on low incomes, (4) influence the level of production, (5) influence the level of consumption, (6) correct market failure and (7) promote equity.
- The main forms of government intervention in markets are: (1) price controls, that is, price ceilings (maximum prices) and price floors (minimum prices), (2) indirect taxes and subsidies, (3) direct provision of services, (4) command and control regulation and legislation, and (5) consumer nudges. (HL only)

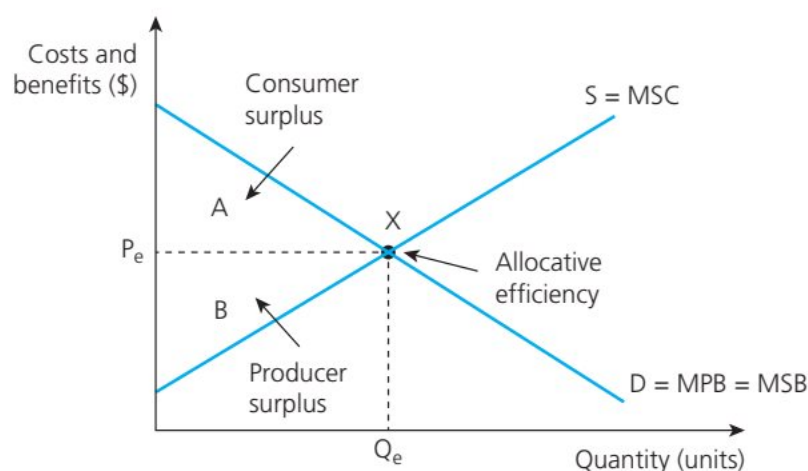
- A price ceiling (or maximum price) occurs when the government sets a price below the market equilibrium price to encourage output and consumption.
- A price floor, also known as a minimum price, is a form of price control that imposes a price guarantee set above the market equilibrium price to encourage supply of a certain good or service.
- An indirect tax is a government levy on the sale of certain goods and services. They include specific taxes and ad valorem taxes. A specific tax (also known as a per unit tax) imposes a fixed amount of tax on each product that is sold. An ad valorem tax imposes a percentage tax on the value of a good or service that is sold.
- A subsidy is a form of financial assistance from the government to encourage output, reduce the price of certain products, or keep down the cost of living for its citizens.
- Command and control (CAC) regulation and legislation refers to the direct rules or laws governing an activity or industry, stating what is permitted and what is illegal.
- Direct provision occurs when the government directly provides or supplies goods and services deemed to be in the best interest of the public.
- Nudges are created by choice architects (such as the government) using small prompts or tweaks to alter social and economic behaviour, but without taking away the power for people to choose. (HL only)
- Government failure arises when the cost of attempting to prevent or correct free market imperfections or distortions turns out to be greater than the social costs of the original market failure itself.

Market failure – externalities and common pool (common access) resources

■ Socially optimum output (AO2, AO4)

- The price mechanism is not always efficient in allocating scarce resources. **Market failure** occurs when the signalling, incentive and rationing functions of the price mechanism fail to operate optimally, which leads to a loss in economic well-being.
- Market failure results in any combination of four outcomes: (1) the under-provision of certain goods and services, (2) the over-provision of certain goods and services, (3) the under-consumption of certain goods and services, and (4) the over-consumption of certain goods and services.
- For example, the market may fail to consider the external costs (such as congestion and pollution) and external benefits (from the provision of public and merit goods) arising from production and consumption.
- Market failure occurs where there is a divergence between private costs and benefits and social costs and benefits of production and/or consumption:
 - **Private benefits** are the advantages of production and consumption enjoyed by an individual firm or person.
 - **Private costs** are the actual expenses incurred by an individual firm or person in an economic transaction.
 - **Social benefits** are the full benefits of consumption or production. $\text{Social benefits} = \text{Private benefits} + \text{Positive externalities}$.
 - **Social costs** are the full costs of consumption or production. $\text{Social costs} = \text{Private costs} + \text{Negative externalities}$.
- The socially optimum allocation of resources occurs when the marginal social benefit (MSB) equals the marginal social cost (MSC), that is, at the output level where $\text{MSB} = \text{MSC}$:
 - **Marginal private benefit (MPB)** is the additional value enjoyed by households and firms from the consumption or production of an extra unit of output.
 - **Marginal private cost (MPC)** is the additional expense of production for firms or the extra amount paid by consumers for the production or consumption of an extra unit of output.
 - **Marginal social benefit** refers to the total gains to society from an extra unit of production or consumption of a particular good or service, that is, $\text{MSB} = \text{MPB} + \text{External benefits}$.
 - **Marginal social cost** refers to the total expenses to society from an extra unit of production or consumption of a particular product, that is, $\text{MSC} = \text{MPC} + \text{External costs}$.
- **Allocative efficiency** is achieved at the socially optimum level of output, that is, where $\text{MSB} = \text{MSC}$. At this level of output, it is not possible to reallocate resources to make one party better off without making others worse off. This also means that social surplus is maximized.

- **Social surplus** (or **community surplus**) is the sum of consumer and producer surplus at a given market price. It is the net benefit available to society from an economic transaction or activity.



Social surplus is shown by the area A+B, comprising both consumer surplus (area A) and producer surplus (area B). At the market equilibrium price (P_e) and equilibrium quantity (Q_e), there are no shortages or surpluses, so resources are allocated efficiently (at point x) thereby maximizing social surplus.

■ **Figure 11.1** Allocative efficiency: maximizing social surplus

TOP TIP!

When price is equal to marginal cost ($P = MC$), economic well-being is maximized because the price that consumers are willing and able to pay matches that of the producers.

TOP TIP!

Community (social) surplus and allocative efficiency are important economic ideas to consider when discussing market failures and the role of government intervention in markets.

- **Positive externalities of production and consumption and welfare loss (AO2, AO4)**
- **Externalities** (or **spillover effects**) are the external costs or benefits of an economic transaction, causing the market to fail to achieve the social optimum level of production or consumption. These prevent the market from clearing where $MSC = MSB$.
- **Positive externalities** (or **external benefits**) of production and consumption are the benefits enjoyed by a third party from an economic transaction. Examples of products with external benefits include merit goods (such as education and healthcare) and public goods (such as flood defence systems and sewage and waste disposal schemes).

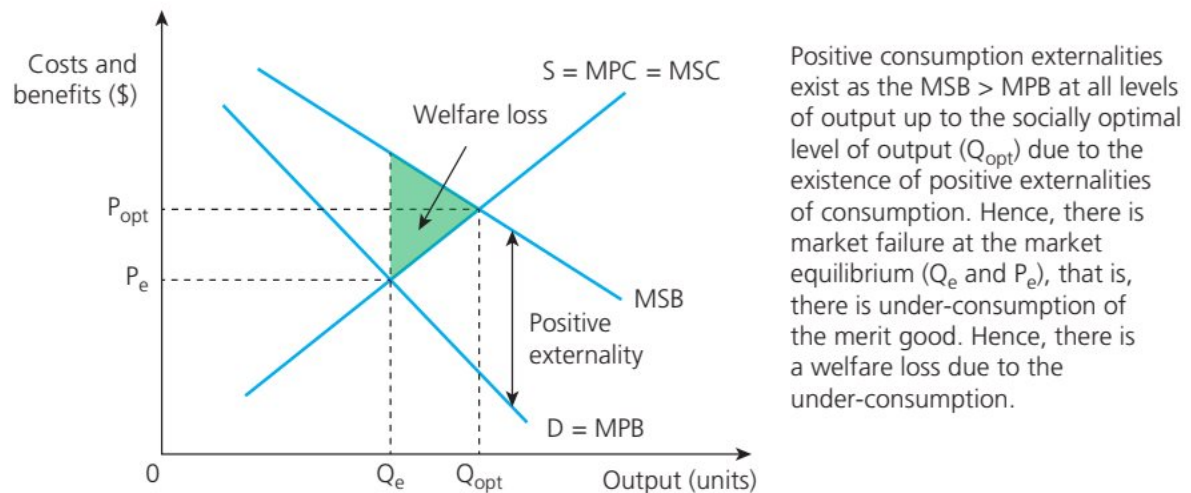
TOP TIP!

When discussing sources of market failure, there is a tendency for students to focus on negative externalities only, such as pollution and damage to the environment. However, remember that externalities can also be positive (external benefits).

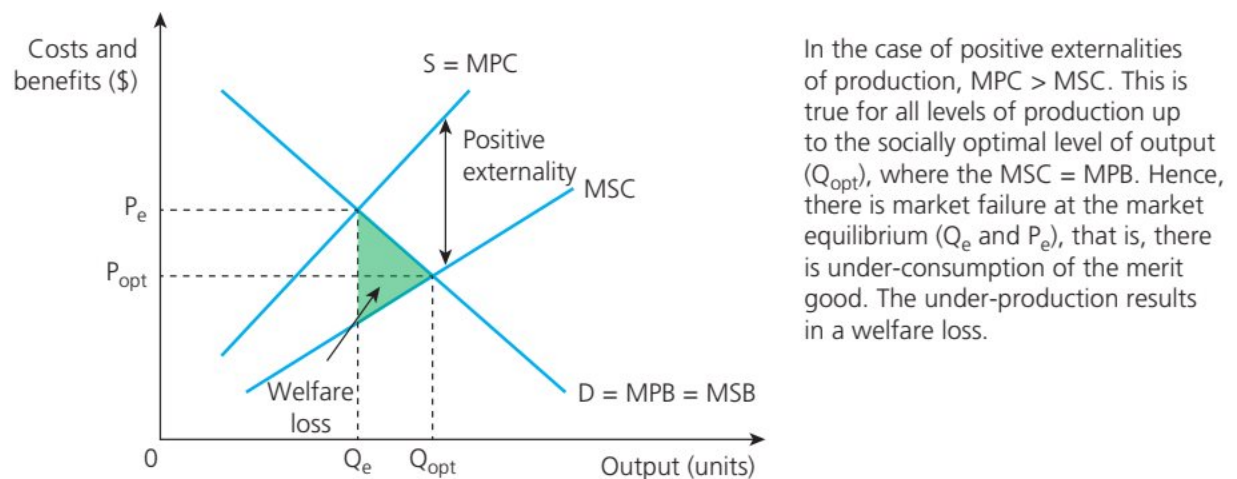
■ Merit goods

- **Merit goods** are products that create positive externalities when they are produced or consumed, that is, $MSB > MPB$ due to the existence of external benefits. They are deemed to be of value by society owing to the spillover effects to third parties.
- Unlike public goods, merit goods are rivalrous (consumption reduces the amount available to others) and excludable (suppliers can prevent non-payers benefiting from

the product). Therefore, merit goods tend to be under-consumed and under-produced in market economies, so government intervention is often needed to ensure a more optimal allocation of resources.



■ **Figure 11.2** Positive externalities of consumption (of merit goods)



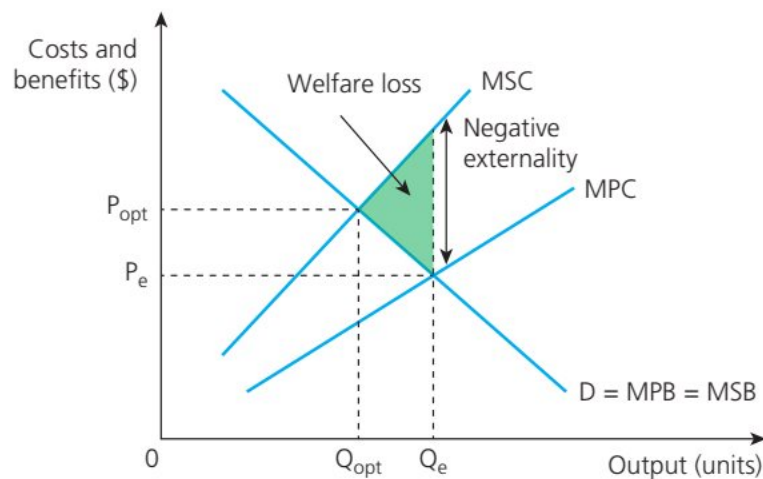
■ **Figure 11.3** Positive externalities of production (of merit goods)

■ Negative externalities of production and consumption and welfare loss (AO2, AO4)

- **External costs** (or **negative externalities**) are expenses incurred by third parties in an economic transaction for which no compensation is paid. For example, the use of fossil fuels such as coal and crude oil in the production process can cause threats to economic, social and environmental sustainability.
- Other examples of external costs from economic activity include air pollution, climate change, second-hand (passive) smoking and traffic congestion, and resource depletion.

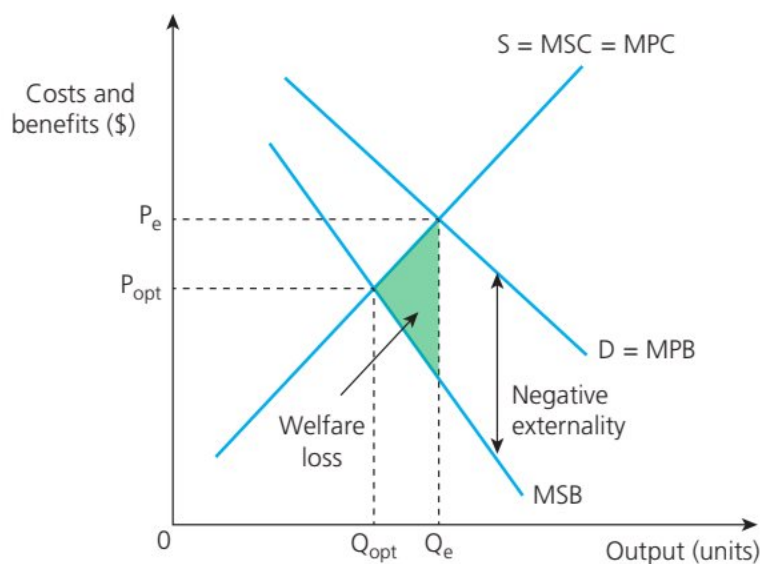
■ Demerit goods

- **Demerit goods** are products that create negative spillover effects (or negative externalities of production or consumption) to third parties, that is, $MSC > MPC$. Negative externalities of production occur when producing a good or service has a detrimental impact on a third party.
- In a free market, without government intervention, demerit goods are over-produced and over-consumed from society's point of view.
- Examples of demerit goods include the over-provision and over-consumption of alcoholic beverages, gambling and betting services, junk food, single-use plastics and tobacco products.



In a market economy, without government intervention, the level of output is Q_e and equilibrium price is P_e , where the $MPC = MPB$ of production. However, the socially optimal level of output is at Q_{opt} where the $MSC = MSB$, with a higher price of P_{opt} being charged. Hence, there is over-production of the demerit good and a corresponding welfare loss.

■ **Figure 11.4** Negative externalities of production (of demerit goods)



In a market economy, free of government intervention, equilibrium output is at Q_e , which exceeds the socially optimal level at Q_{opt} . Hence, there is overconsumption of the demerit good and a corresponding welfare loss.

Society would benefit from reducing consumption of the demerit good from Q_e to Q_{opt} , thereby eliminating the negative externalities of consumption.

■ **Figure 11.5** Negative externalities of consumption (of demerit goods)

TOP TIP!

Do not confuse *public goods* with *merit goods*. Both the public and private sectors of the economy provide merit goods, such as education and health services. Unlike public goods, merit goods can be *rivalrous* and *excludable*, such as private fee-paying schools and private healthcare clinics.

■ Common pool resources (AO2, AO4)

- Another source of market failure is **common pool resources** (CPRs). Also known as **common access resources** (CARs), CPRs are *not* owned by a private individual or firm, so do not have a price, but are available for anyone to use without direct payment.
- Examples of CPRs include: fisheries, irrigation and drainage systems, rivers, forests and the natural atmosphere.
- Common pool resources have three key characteristics:
 - 1 **Non-excludable** – this means that it is not possible to prevent those who are unwilling or unable to pay from benefiting once the resource is provided. These users are known as *free riders*. Hence, there tends to be over-consumption.
 - 2 **Rivalrous** – this means that the usage of a resource reduces the amount that is available for others. Consumption of CPRs diminishes the quantity of remaining resources for the current and future generations to use.

3 Tragedy of the commons – this means the degradation, depletion or destruction of a CPR caused by the problems of overuse (or abuse) and over-consumption, due to poor governance and the lack of property rights.

- The absence of a price mechanism means the market fails to allocate scarce common pool resources in an efficient manner.

■ Unsustainable production creating negative externalities

- Owing to the nature of non-excludability and the resulting tragedy of the commons, production of common pool resources is unsustainable. This means the exploitation of CPRs results in unsustainable production and negative externalities of production and consumption.
- Examples of such negative externalities (external costs) include the negative impact to societies from deforestation, overfishing, air and water pollution, soil erosion, destruction of natural habitats and climate change.

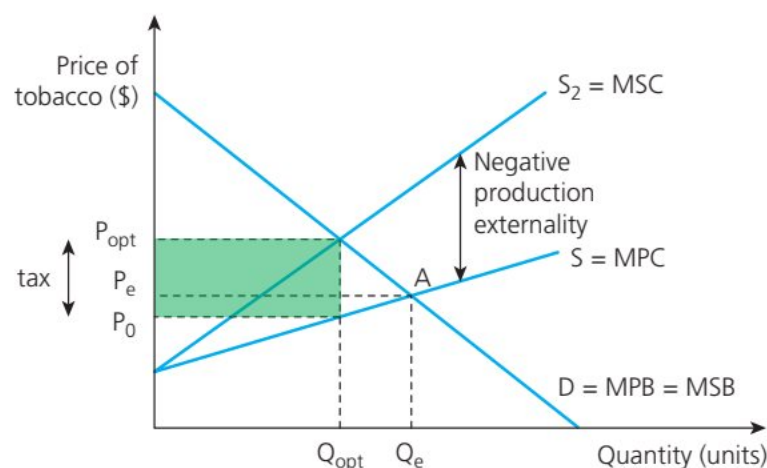
TOP TIP!

Common access resources differ from public goods because they are *subtractable* (over-used) rather than *non-rivalrous* (the use by an individual does not diminish the amount available for others).

■ Government intervention in response to externalities and common pool resources (AO2, AO4)

■ Indirect (Pigouvian) taxes

- An **indirect tax** is used to internalize negative externalities, that is, the buyer and/or seller pay for the true costs of their actions without the burden being placed on third parties. Examples include indirect taxes imposed on petrol, alcohol, tobacco, sugary drinks and the use of plastic carrier bags.
- Negative externalities create a divergence between MPB and MSC, thereby resulting in a welfare loss.
- They are corrective measures used to reduce or eliminate the external costs (negative externalities) associated with the production of certain products. They are also known as **Pigouvian taxes**, named after British economist Arthur Cecil Pigou (1877–1959).
- The indirect tax raises the price of the product and therefore reduces the quantity demanded, *ceteris paribus*. It also creates tax revenues for the government (shown by the shaded area in Figure 11.6).
- However, imposing an indirect tax might not be effective in reducing consumption if the demand for demerit goods is highly price inelastic. Indirect taxes are also criticized for being regressive, so have a greater impact on low-income households.
- A Pigouvian tax is shown by the vertical distance between the two supply curves in Figure 11.6. The consumer pays a higher price ($P_{\text{opt}} - P_c$) and the producer pays the remainder ($P_c - P_0$). The more price inelastic the demand for the product, the greater the proportion of the tax paid by the consumer.

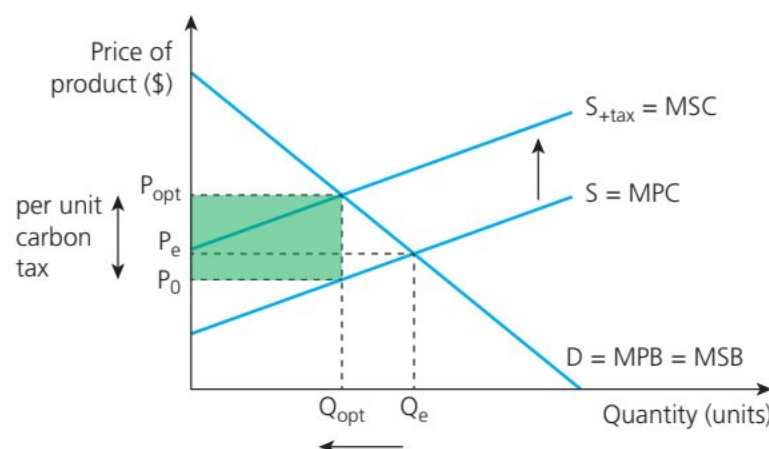


Using an indirect tax makes the price of the product equal to the MSB thereby creating a more socially efficient and desirable allocation of resources. The indirect tax raises costs for the producer, thereby causing the MPC curve to shift towards the MSC curve. This causes the price to rise from P_e to P_{opt} and the quantity demanded to contract from Q_e to Q_{opt} (the socially optimal quantity).

■ **Figure 11.6** Indirect tax on tobacco producers

■ Carbon taxes

- A carbon tax works in a similar way to a Pigouvian tax by identifying the price of greenhouse gas emissions or the carbon content of fossil fuels (such as coal, diesel fuel and natural gas) and imposes this external cost on the polluting industry.
- Excess carbon emissions cause global warming and climate change, thereby creating negative externalities caused by natural disasters such as severe flooding, landslides and droughts.
- The imposition of carbon taxes creates incentives for firms and consumers to reduce their carbon footprint (pollution), which would reduce their tax liability.
- Carbon taxes are set by assessing the pollution costs and the associated administrative costs of controlling the pollution, thereby internalizing negative production externalities (see Figure 11.7).



The effect of the per unit carbon tax ($P_{opt} - P_e$) is a fall in the output level, from Q_e to Q_{opt} , and a higher price for the product, from P_e to P_{opt} . The government earns the tax revenue shown by the shaded area.

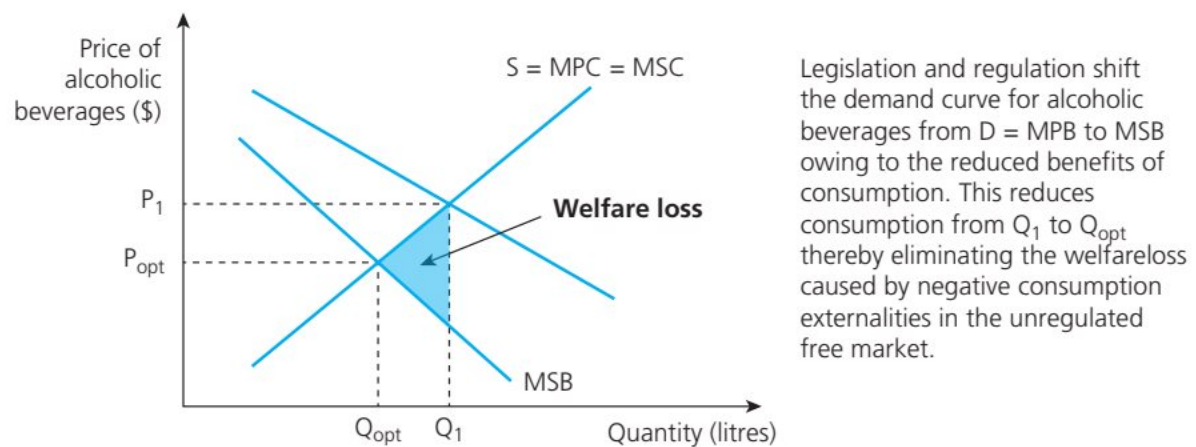
■ **Figure 11.7** Carbon tax on polluting firms

- Carbon taxes impose additional costs to users of carbon fuels, that is, users pay for the environmental and ecological damage caused by their economic activities. They can also incentivize firms to switch to alternative (non-carbon) fuels that are greener and more efficient.
- Like Pigouvian taxes, the effectiveness of carbon taxes depends on the extent to which firms are able to pass on higher energy costs to customers. If the demand for their product is price inelastic, consumers will bear a greater proportion of the carbon tax burden.

- However, carbon taxes are regressive, as they account for a larger proportion of the income of poorer households. Furthermore, higher income households are in a better financial position to switch to alternative and energy-efficient technologies.

■ Legislation and regulation

- **Legislation** refers to the laws on the use of scarce resources. **Regulation** refers to the management of complex rules, laws and policies that firms need to comply with.
- In the case of merit goods, laws can be used to encourage greater consumption of goods and services with positive externalities. For example, legislation and regulation are used to ensure there is compulsory education for children.
- In the case of demerit goods, such as the consumption of alcoholic beverages, legislation and regulation are used to limit or reduce production and consumption.

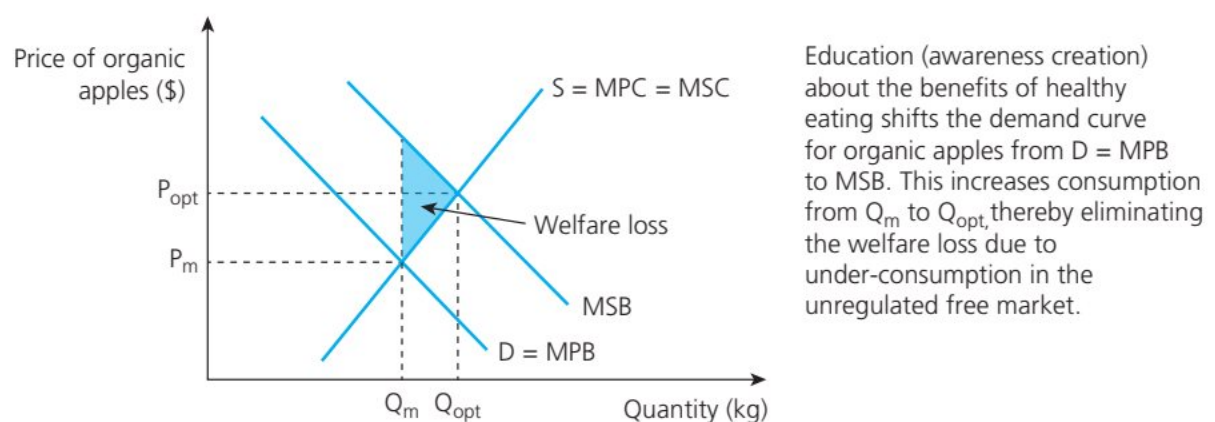


■ **Figure 11.8** Regulation of negative consumption externalities

- However, legislation and regulation can cause parallel (illegal) markets to develop where the demerit good or service can be purchased, often at an exceedingly high price.
- Unless the penalties are extremely high to act as a deterrent and are consistently enforced, consumers may choose to break the rules, such as under-age smoking, drinking and gambling.

■ Education – awareness creation

- This form of intervention is about educating society about the full costs of consuming demerit goods and the full benefits of consuming merit goods.
- These measures help to influence more socially desirable outcomes, such as consumers learning about the dangers of smoking or gambling, so fewer people smoke or go to casinos.

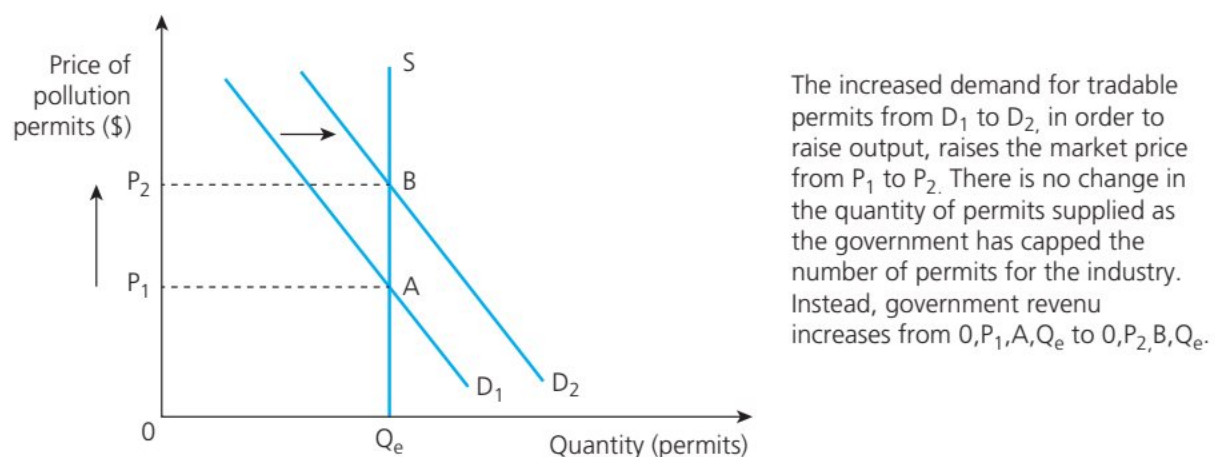


■ **Figure 11.9** Education (awareness creation) and positive consumption externalities

- However, education and awareness creation tactics do not necessarily work in changing people's social behaviours. There are time lags in educating people and for this to be accepted and acted upon by society.
- There is also an opportunity cost of government expenditure on education and awareness creation – alternative measures such as indirect taxes and regulation may be more effective than expenditure used to educate people to reduce their consumption of demerit goods.

■ Tradable permits

- **Tradable permits** (or **cap and trade schemes**) set a limit on the total amount of emissions or pollution allowed in an industry, with firms being issued emissions permits per time period.
- It is a market-based approach to reduce production to a more socially efficient level, with the aim of making the polluter pay for the external costs of their production. The largest polluters need to purchase more permits, which increases their costs of production, which makes them less competitive and less profitable.
- The scheme allows pollution permits to be freely traded (based on the price mechanism), enabling more efficient firms to sell their excess permits.
- Tradable permits help to reduce carbon emissions as well as raise a significant amount of revenue for the government.



■ **Figure 11.10** Impact of higher demand for tradable permits

- However, critics argue that cap and trade schemes are anti-competitive (against smaller firms) and can cause job losses (due to higher costs of production).
- Furthermore, in a more globalized world, multinational companies can shift production to other countries to avoid the constraints of tradable pollution permits.

■ International agreements

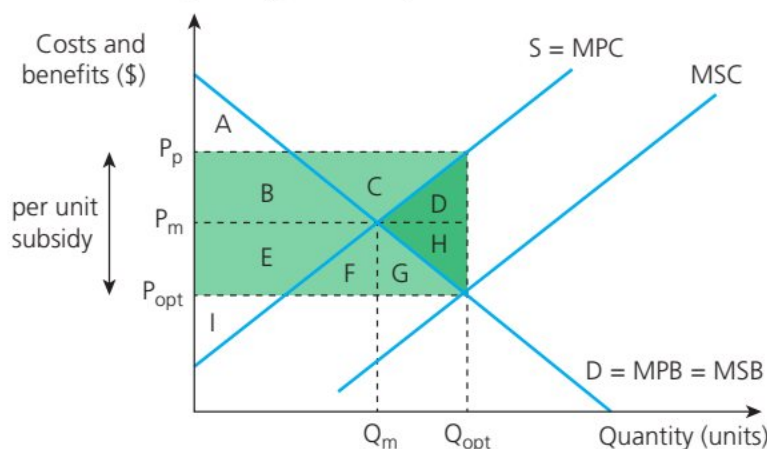
- Governments can create and develop international agreements to respond to the growing problems of negative externalities of production and consumption. For example, the G7 Leaders' Summit and the United Nations Climate Change Conference in 2021 focused on both recovery of the world's economies from the COVID-19 pandemic and tackling climate change and preserving the planet's biodiversity.
- Some of these may be bilateral agreements (between two countries) while most are multilateral agreements but are nevertheless essential for environment protection.
- Most international agreements are legally binding for the member countries, which helps to hold countries to account for their actions and potential harm to the environment.

■ Collective self-governance

- **Collective self-governance** refers to voluntary communal actions to combat the problems of negative externalities and the problems associated with the exploitation of common pool resources. It is particularly prominent in the sustainable tourism industry.
- Elinor Ostrom (1933–2012), the first female winner of the Nobel Memorial Prize in Economic Sciences (2009), made huge contributions regarding how to overcome the problem of the tragedy of the commons by using collective self-governance and voluntary mutually agreed rules, including community-agreed sanctions if these rules are broken.
- Ostrom argued that local communities make more informed decisions about the use of community resources rather than governments or other regulating authorities, as they have knowledge about the local culture and context and because they are directly affected.
- Such policies can also create socioeconomic benefits for local communities, including employment opportunities and higher income earnings.

■ Subsidies

- A **subsidy** is a sum of money given to a producer by the government to reduce the costs of production (thereby encouraging higher levels of output) or to consumers to reduce the price of consumption. For example, some governments subsidize providers of public transportation, which helps to discourage people from using private vehicles (see Figure 11.11).



■ **Figure 11.11** The effects of a producer subsidy on public transportation

- A per unit subsidy to the public transport provider is shown by the vertical distance between the MPC and MSC curves, that is, the value of positive externalities. The subsidy reduces production costs, so shifts the supply curve from $S = MPC$ to MSC . Consumers gain from a lower price (from P_m to P_{opt}) and increasing the quantity demanded from Q_m to Q_{opt} , thus reducing congestion on roads. Producers retain the difference (P_p to P_m) in the form of lower production costs.
- The cost of the subsidy scheme is shown by the green shaded area, which is funded by the government.
- However, the cost of funding the subsidy from taxpayers does not equate to additional producer or consumer surplus, and there are administrative costs associated with the provision of subsidies. This results in a welfare loss shown by the triangular area $D+H$. This is because:

- consumer surplus was originally represented by the area A+B
- producer surplus was originally E+I
- following the subsidy, consumer surplus increases to area A+B+E+F+G
- producer surplus is now shown by the area B+C+E+I
- taxpayers fund the amount spent by the government on the subsidy, shown by the shaded green area (B+C+D+E+F+G+H)
- as area D+H is not transformed into either consumer or producer surplus, this represents inefficiency, that is, a welfare loss.

TOP TIP!

Note that the IB syllabus requires you only to construct a diagram for producer subsidies (not consumer subsidies). Hence, remember that subsidies are used to shift the supply curve outwards to the right (rather than shifting the demand curve to the right).

■ Government provision

- Direct provision of goods and services is a final government response to the free market's inability to provide an adequate supply of merit and public goods, such as provision of public transportation services, public libraries, museums, communal parks, education and healthcare services.
- The main advantage of direct government provision is that merit and public goods become accessible to everyone in society, regardless of their income or social status. This helps to improve the economic well-being of society as a whole.
- However, government provision also has its limitations, including economic inefficiencies caused by the lack of incentives, and the opportunity costs of funding government provision.

TOP TIP!

There are nine types of government intervention specified in the IB syllabus in relation to tackling externalities and common pool resources (CPRs). These can be remembered by the acronym **PIGLETS CC**: **P**igouvian taxes, **I**nternational agreements, **G**overnment provision, **L**egislation and regulation, **E**ducation (awareness creation), **T**radable permits, **S**ubsidies, **C**arbon taxes and **C**ollective self-governance.

■ Strengths and limitations of government policies (AO3)

The above section examined the types of government intervention to tackle externalities and common pool resources. The strengths and limitations of these policies depend on three main areas:

- 1 Challenges involved in the measurement of externalities.
 - 2 Degree of effectiveness versus degree of government failure.
 - 3 Consequences for different stakeholder groups.
- It can be extremely challenging to measure accurately the value of externalities (such as the value of the damage caused by noise pollution or the benefits from street lighting in a particular area).
 - In reality, the effectiveness of government policies can be limited by time lags (such as education and awareness creation of the dangers of smoking or gambling) and the costs of enforcement (such as fining people who litter).

- Excessive government intervention can distort markets and create greater inefficiencies.
- Different stakeholder groups are affected by government intervention in different ways. Whether government intervention is effective depends on which stakeholder perspectives are given priority. For example, carbon taxes tend to favour large multinational companies that have the financial resources to cope, while Pigouvian taxes are regressive, so have a larger impact on low-income earners and smaller firms.
- In reality, value judgements influence the use of certain policies to deal with market failures and common pool resources. It is not only politicians and policymakers who disagree on how best to tackle these issues; economists from different economic schools of thought also have their alternative views on these matters.

■ Importance of international co-operation (AO3)

- Market failures cannot always be tackled by national governments working in isolation. The problems of overfishing, deforestation and climate change cannot be adequately resolved without international collaboration, co-operation and commitment. For example, international agreements about reducing carbon emissions or overfishing require full co-operation from all countries, not just those that sign treaties (agreements) at different points in time.
- International co-operation has gained prominence owing to the global nature of sustainability issues (the United Nations' 17 Sustainable Development Goals). For example, global warming, climate change and increased concerns about inequalities have prompted governments around the world to consider ecological and social sustainability rather than just economic sustainability.
- However, differences in cultural norms and local contexts can create challenges for international co-operation. Laws differ regarding the minimum age for smoking, drinking, gambling and driving, for example. Countries such as Andorra, Luxembourg and Belarus may be reluctant to ban the sale of tobacco products owing to the lucrative tax revenues earned. Similarly, Belgium, Spain, France, Mexico and Japan earn significant export revenues on the sales of alcoholic beverages.
- Monitoring and enforcement are vital for interventionist measures to correct market failures. However, there are both financial and opportunity costs of monitoring and enforcing such policies. For example, achieving the UN's 17 SDGs requires careful monitoring and enforcement, and international co-operation, such as achieving a reduction in inequalities within and between countries.

PAPER 2 EXAM PRACTICE QUESTION 11.1

- a Suggest **one** private cost and **one** external cost of driving private motor vehicles. [2 marks]
- b Explain **two** social costs of building a new high-speed railway system. [4 marks]

PAPER 1 EXAM PRACTICE QUESTION 11.2

With the aid of a market failure diagram, explain why a government might use congestion zone charging to reduce the use of motor vehicles in city centres like London and Paris. [10 marks]

PAPER 1 EXAM PRACTICE QUESTION 11.3

Explain why merit goods are examples of market failure. [10 marks]

Chapter summary

- The socially optimum output of a good or service occurs at the point where marginal social benefit (MSB) equals marginal social cost (MSC).
- This is also the condition for allocative efficiency to occur, as social surplus is maximized at the output level where $MSB = MSC$.
- Market failure occurs when the price mechanism cannot allocate resources efficiently but causes external costs or external benefits of production or consumption. In such cases, allocative efficiency is not achieved.
- Positive externalities (external benefits) arise from the production or consumption of goods or services that create positive spillover effects to third parties. These products are known as merit goods.
- Negative externalities (external costs) arise from the production or consumption of goods or services that create negative spillover effects to third parties. These products are known as demerit goods.
- Common pool resources (CPRs) are goods or services that have the characteristics of non-excludability and rivalry in consumption. The over-exploitation of CPRs can lead to the tragedy of the commons, such as overfishing and deforestation.
- The tragedy of the commons refers to the notion that market failure and the absence of property rights results in there not being a market or a price to preserve the resource. This is inefficient and poses a threat to the sustainability.
- Non-excludability means it is not realistically possible to exclude people from using a resource even if they do not pay.
- Rivalrous means that one person's use of a resource diminishes the availability and benefits of that resource to others in society.
- There are nine methods of government intervention in response to negative externalities and common pool resources, which can be remembered by the acronym PIGLETS CC: Pigouvian (indirect taxes), International agreements, Government provision, Legislation and regulation, Education (awareness creation), Tradable permits, Subsidies, Carbon taxes and Collective self-governance.
- The government can internalize the costs of negative externalities by imposing an indirect tax (Pigouvian tax) equal to the external marginal cost of production or consumption, thus forcing producers and consumers to pay the full marginal social cost.
- Tradable permit schemes create an incentive for firms to develop greener or cleaner technologies in the long run.
- The strengths and limitations of government policies to correct externalities and approaches to managing common pool resources are partly determined by the challenges involved in the measurement of externalities, the degree of effectiveness of these policies and the different consequences for different stakeholders.
- International co-operation is of absolute importance for governments to tackle the problems of market failure such as climate change and environmental degradation. Matters to be considered for governments include the global nature of sustainability issues, the challenges faced in international co-operation, as well as the complexities of monitoring and enforcement within their own borders.

Market failure – public goods

■ Public goods (AO2)

- **Public goods** are collective consumption goods that have two key characteristics: (1) non-rivalrous and (2) non-excludable. The term was coined by US economist Paul A Samuelson in 1954.
- **Non-rivalrous** – An individual's consumption of a public good does not diminish the benefits available to others in society.
- **Non-excludable** – Unlike a private good, it is not possible to exclude individuals from the benefits of consumption, even if they do not pay.
- Examples of public goods include lighthouses, national defence (national security), open-source software, street lighting and waste disposal systems.
- A good or service that has both characteristics (non-rivalrous and non-excludability) is known as a **pure public good**. Those with one of these characteristics only are called **quasi-public goods**. For example, there is a degree of rivalry for public roads (heavily congested roads) as well as excludability (motorists need a licence and a vehicle).
- By contrast, a **private good** is both excludable and rivalrous. Those who are unwilling and/or unable to pay are excluded from the benefits of the product. Also, once the product has been consumed, it is not available for others.

TOP TIP!

It is inaccurate to say that public goods are those provided by the public sector. The nature of public goods means there are no incentives for private sector firms to provide such goods and services. It is for this reason only that the government intervenes to provide such public goods.

■ Free rider problem

- Non-excludability means that it is not possible to prevent an individual from using the public good even if they do not pay for it. Hence, profit-maximizing firms in the private sector do not have any incentive to provide such goods.
- Non-rivalrous means that once a public good is provided it can be consumed at zero marginal cost.
- The two characteristics of public goods result in the **free rider problem**. This occurs when people have access to (or benefit from) a good or service without having to directly pay for it. Hence, there is no market demand for a public good.
- Free riders take advantage of public goods without directly contributing to such provision.
- Free riding creates several economic problems for the economy:
 - It leads to the under-production and/or over-consumption of public goods, which is economically inefficient.
 - Over-consumption and over-exploitation of public goods can lead to the *tragedy of the commons*, which results in destruction or even extinction, such as public beaches being ruined by visitors.

- External costs (negative externalities) are not considered – for example, litter and plastic waste left in public parks and on public beaches, thereby causing damage to the natural environment and ecosystems.

TOP TIP!

Students often confuse merit goods with public goods. While merit goods and public goods both have positive externalities, public goods are unlikely to be provided by private sector firms (owing to the free rider problem). However, merit goods are excludable (such as private education and healthcare) and are often provided by private sector firms.

■ Government intervention in response to public goods (AO3)

- Government intervention takes place to tackle the issue of the free rider problem as public goods are unproduced or not produced by the market economy.
- The non-rivalrous and non-excludability characteristics of public goods provide a strong case for the government to provide and pay for their provision rather than relying on the market mechanism to do so.
- The government has two methods of intervention in response to public goods: (1) direct provision and (2) contracting out to the private sector. Both methods are funded by the government.

■ Direct provision

- Direct provision occurs when the government openly provides public goods without having to use a third-party provider; for example, law and order systems, national defence (national security) and the emergency services (ambulance, fire and police).
- Without direct provision, public goods would simply not be provided, owing to the free rider problem.
- However, direct provision is generally seen to be favourable as there are positive externalities associated with their production and consumption. Hence, direct provision of public goods helps to improve the well-being of individuals and societies.
- The main arguments against direct provision are the financial costs (which ultimately are passed on to taxpayers) and opportunity costs of financing such expenditure.
- There is also potential government failure from intervening in markets as policymakers do not necessarily know what is best for individuals and societies.

■ Contracting out

- The imperfections of the market economy in the provision of public goods need to be weighed against the imperfections of direct government provision, especially when there are bureaucratic and inefficient processes involved.
- Instead, the government might choose to contract out the provision of public goods to firms operating in the private sector.
- This involves the government paying a specialized third-party firm with the expertise to provide the public good, such as the provision of public fireworks displays (to celebrate major events like New Year or National Day celebrations).
- In any case, if the marginal social benefit (MSB) of provision is greater than the marginal social cost (MSC), then there is an under-allocation of a public good. By contrast, if $MSC > MSB$, there is an over-allocation of the public good. Hence, the optimal quantity of a public good occurs where $MSB = MSC$.

TOP TIP!

While public goods exert positive externalities of consumption, not all goods that have positive externalities are public goods. For example, private healthcare and private education (both private goods) exert positive externalities of consumption.

PAPER 1 EXAM PRACTICE QUESTION 12.1

Explain why public goods are a source of market failure.

[10 marks]

PAPER 2 EXAM PRACTICE QUESTION 12.2

Explain why public goods tend to be provided by the public sector rather than the private sector.

[4 marks]

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 12.3

Explain why public goods are economic goods rather than free goods.

[4 marks]

PAPER 1 EXAM PRACTICE QUESTION 12.4

Explain the social costs and social benefits of a major road expansion project funded by the government.

[10 marks]

Chapter summary

- Public goods are collective consumption goods that have two characteristics: non-rivalrous and non-excludable.
- Non-excludability means that it is not possible to prevent someone from using a good or service even if they have not paid for it, because it is not practical to charge a price.
- Non-rivalrous means the consumption of a good or service by one individual does not reduce the amount available for others.
- Private sector firms lack any incentive to provide public goods as they are unable to charge consumers (owing to the free rider problem).
- The free rider problem occurs when people have access to the benefits of a good or service without having to pay for it.
- The free rider problem leads to public goods being under-provided or not provided at all, thus causing market failure in the production and consumption of public goods.
- If the free-rider problem cannot be addressed, the government needs to intervene to provide the public goods (direct provision) and/or pay third-party providers in the private sector to do so (outsourcing).
- Government provision can help to prevent the under-provision and under-consumption of public goods, thereby improving social welfare.
- The government provides an efficient quantity of a public good when the marginal social benefit (MSB) of provision equals the marginal social cost (MSC).

Market failure – asymmetric information (HL only)

■ Asymmetric information (AO2)

- **Asymmetric information** is a source of market failure that exists when one economic agent (buyer or seller) has more information than the other in an economic transaction. It occurs due to incomplete information or inaccessibility to information.
- The existence of asymmetric information creates a problem because one party can exploit the other with their greater knowledge. Having inaccurate and biased knowledge can subsequently lead to irrational decision-making. Imperfect information can also lead to market inefficiencies and market failure.
- Therefore, asymmetric (missing, unbalanced or incomplete) information is a significant cause of market failure because the party with access to better information has an unfair competitive advantage.



■ **Figure 13.1** Asymmetric information is commonplace in the used cars market

- Asymmetric information causes an imbalance of power between economic agents in a transaction, so tends to distort the decision-making process.
- Asymmetric information often leads to **opportunistic behaviour** in markets. This means that one party, with an unfair advantage, is motivated to act in such a way as to maximize their self-interest to the loss of the other party that lacks access to the information.
- Economists distinguish between two forms of opportunistic behaviour: (1) adverse selection, and (2) moral hazard.
- **Adverse selection** refers to the undesired decisions or outcomes that occur when buyers and sellers have access to imperfect (asymmetric) information. This is because one party has more information than the other, which leads to a suboptimal selection or choice.
- When economic agents are ignorant of certain aspects of an economic transaction due to asymmetric information, such as the quality of the good or service they are buying, they are compelled to make assumptions and therefore adverse choices.
- A **moral hazard** is a situation where a party protected from risk (due to having superior information) behaves in a less careful manner than if they were fully exposed to the risk. For example, individuals who qualify for unemployment welfare benefits are less likely (less incentivized) to look for employment than if the government reduced or removed such benefits.

- Essentially, a lack of equal information causes economic imbalances that result in opportunistic behaviour (adverse selection and moral hazards). This results in market failures because an individual's or firm's pursuit of pure self-interest and the tendency to act less carefully (or rationally) leads to inefficient outcomes.

TOP TIP!

Adverse selection is a problem of market failure created by asymmetric information *before* an economic transaction occurs. **Moral hazard** is a problem of market failure created by asymmetric information *after* an economic transaction takes place.

TOP TIP!

While missing information is a source of market failure, information overload can be overwhelming for individuals so this can also distort rational decision-making.

■ Responses to asymmetric information (AO3)

- Economic theory suggests that the demand for information will increase if it is provided at a lower price or if it is available for free, *ceteris paribus*.
- However, profit-maximizing firms are fully aware that asymmetric information can give them a greater degree of market power.
- Asymmetric information as a source of market failure can be tackled by government intervention or by responses in the private sector.
- Government responses to the problem of asymmetric information include: legislation and regulation, and the provision of information. Private responses include: signalling and screening.

■ Government responses

- **Legislation** refers to laws stipulated by the government, such as the minimum age for consumers to buy cigarettes or to gamble.
- **Regulation** refers to an authority monitoring the activities of firms to ensure they comply with legislation. For example, the UK's Advertising Standards Authority regulates the advertising industry and requires all adverts to be 'legal, decent, honest and truthful'.
- Regulation and legislation are required to tackle unethical marketing practices and asymmetric information in markets, thereby limiting the opportunities for economic agents to exploit information failures.
- **Provision of information** means the government provides additional information about certain goods and services and/or requires firms to do so in order to help economic agents to make more informed decisions, such as food labelling laws and health warnings on tobacco products. It also includes educating people about making rational and socially desirable choices, such as the benefits of a vaccination programme.

■ Private responses

- Government responses are not always effective in correcting market failures. Hence, private responses (signalling and screening) to asymmetric information may be needed.
- **Signalling** is a private response strategy undertaken by the economic agent with more or superior information in order to tackle the problem of adverse selection. Sellers signal the benefits of their products so that buyers can make more informed decisions.

- **Screening** is a private response strategy of tackling adverse selection by the economic agent with less or inferior information in order to minimize the decision-making complications caused by asymmetric information. The internet has facilitated screening, such as reading customer reviews about a particular hotel or restaurant.

PAPER 2 EXAM PRACTICE QUESTION 13.1

- | | | |
|---|---|-----------|
| a | Define the term <i>asymmetric information</i> . | [2 marks] |
| b | Explain why insurance policies can be an example of asymmetric information. | [4 marks] |

PAPER 1 EXAM PRACTICE QUESTION 13.2

- | | |
|---|------------|
| Explain why asymmetric information is likely to cause market failure. | [10 marks] |
|---|------------|

Chapter summary

- Asymmetric information exists if there is not perfect knowledge in a market. It is a source of market failure that exists when an economic agent (buyer or seller) has more information than the other in an economic transaction.
- The existence of asymmetric information means there can be an incentive for one party to exploit the other in order to maximize their own return or utility.
- However, such opportunistic behaviour results in market inefficiencies as consumer and producer surplus are not maximized. Opportunistic behaviour occurs when one party takes advantage of the opportunity that the other party lacks information.
- Adverse selection refers to undesired decisions or outcomes that occur when buyers or sellers have asymmetric information due to the imbalance of power.
- A moral hazard exists if a party is protected from risk due to having superior information so behaves differently than if they were fully exposed to the risk. This potentially imposes costs on the party that has inferior information.
- Owing to the inefficiencies caused by imperfect information, the government has a key role in reducing or removing information failures. Government responses include legislation, regulation and the provision of information:
 - Legislation refers to laws stipulated by the government as a response to tackling imperfect information in markets, such as requiring health warnings on cigarette packets.
 - Regulation is about monitoring the activity of firms to ensure they do not act in an anti-competitive way.
 - Provision of information helps to educate people about making rational and socially desirable choices, such as the benefits of a vaccination programme.
- Private responses from individuals and firms to tackle the issue of asymmetric information include signalling and screening:
 - Signalling is a strategy undertaken by the party with more information to tackle the problem of adverse selection with the aim of maximizing their own return or utility.
 - Screening is a strategy undertaken by the party with less or inferior information to tackle the problem of adverse selection, with the aim of maximizing their own return or utility.

■ Perfect competition (AO2)

- **Market power** refers to the ability of a firm to manipulate the price of a product either above or below a market equilibrium level. The amount of market power that a firm has determines what market structure it operates in.
- **Market structure** refers to the categorizing of firms in a particular industry, based on:
 - the number and size of firms in the industry
 - the nature of barriers to entry to the industry (the extent to which the market is contestable)
 - the degree and intensity of price and non-price competition in the market.
- The four main categories of market structures are: (1) perfect competition, (2) monopolistic competition, (3) oligopoly, and (4) monopoly.

■ Perfect competition (AO2)

- **Perfect competition** is a market structure where there is an intensive degree of competition, with no individual firm being large enough to have any market power to influence the price or quantity traded.
- Firms operating in perfect competition are called **price takers**. This means that no individual firm is large enough to have the market power necessary to influence the equilibrium output or price.
- The three key characteristics of perfect competition (the assumptions of the model) are:
 - **Many firms** – There are a large number of buyers and sellers in the market.
 - **Free entry** – There is freedom of entry into and exit from the perfectly competitive industry.
 - **Homogeneous products** – All firms in the market sell identical products. This also implies there is perfect knowledge, that is, buyers and sellers have perfect information about products and prices. It also means the demand is highly price elastic.
- As a theoretical extreme, there are no firms or industries that can fit these assumptions perfectly in the real world. However, the model is seen as a representation of how competition can impact a market and change the behaviour of firms.

■ Monopoly (AO2)

- A **monopoly** is a market structure where there is a single or dominant supplier of a good or service.
- The monopolist has significant market power, enabling the firm to control enough of the market supply to be able to manipulate prices. Hence, the monopolist is a **price maker** (or **price setter**), with the ability to charge higher prices for its products.
- The three key characteristics of monopoly (the assumptions of the model) are:
 - **Single or dominant firm** – A *pure monopoly* exists when there is only one firm in the market. A monopoly also exists if there is a dominant firm with significant market power in an industry.

- **High barriers to entry** – These are obstacles that prevent other firms from trying to enter the industry, such as high set-up costs or legal barriers. This also implies that monopolists can earn abnormal profit in the long run as the high entry barriers prevent entrants from setting up in the industry.
- **No close substitutes** – The lack of availability of close substitutes means the monopolist can enjoy its market position. It also implies demand is highly price inelastic.
- In reality, a monopoly exists in a market dominated by one firm with significant market power, such as Coca-Cola (the world's largest carbonated soft drinks producer) and Tetra Pak (the largest food packaging company in the world).

TOP TIP!

'As monopolists are price makers, they are able to charge whatever price they want. This means monopolies tend to be bad for the economy.'

Monopolists cannot 'charge whatever price they want'. While they have the ability to control the market supply, they cannot control market demand. Recall that the value of PED along a linear demand curve will increase as the price increases. If prices are too high, consumers will eventually find alternative options. Hence, in line with the law of demand, monopolists must reduce their prices if they want to sell more.

■ Imperfect competition (AO2)

There are few, if any, examples that can be given for perfect competition and monopoly in the real world. Most firms operate in imperfectly competitive markets, namely under the market structures of oligopoly and monopolistic competition.

■ Oligopoly (AO2)

- An **oligopoly** is a market structure where a few large firms dominate the industry. Competition is intense due to the large market power of each of these dominant firms, rather than due to the number of firms in the market.
- It is generally assumed that oligopolistic firms do not collude together. There are three main characteristics (or assumptions) of non-collusive oligopoly:
 - **A few large firms** – Regardless of the number of firms in the industry, an oligopolistic market is dominated by a few large firms with a high degree of market power.
 - **High barriers to entry** – Obstacles exist that make it difficult for potential entrants to compete with the large and well-established firms in an oligopolistic market.
 - **Interdependence** – The actions of an oligopolistic firm, such as non-pricing strategies used to attract customers, will directly impact the behaviour of other market leaders in the industry.
- Owing to the nature of interdependency and price rigidity in oligopolistic markets, firms have to look for other ways to compete. This is referred to as **non-price competition**, which focuses on product differentiation and advertising to gain competitive advantages.

■ Monopolistic competition (AO2)

- **Monopolistic competition** is a market structure in which many firms exist but each firm has only a small degree of market power.

TOP TIP!

Note that free entry does not mean that there are no set-up costs to start a business – this would not be realistic. Instead, this means entry to the market is relatively affordable and straightforward, without excessive administrative and legal obstacles.

- The three main characteristics (assumptions) of monopolistic competition are:
 - **Many firms** – There are many firms in a monopolistically competitive market, but as they do not produce or sell homogeneous products, each firm has a small degree of market power.
 - **Free entry** – There is an absence of barriers to entry, so any firm is free to set up in the market and compete with the existing monopolistically competitive firms.
 - **Product differentiation** – Firms have the ability to differentiate their goods and services, such as through advertising and branding.



■ **Figure 14.1** Market structures

■ Rational producer behaviour – profit maximization (AO2, AO4)

- In economics, it is assumed that producers act rationally by seeking to maximize profit.
- Profit is the positive difference between total revenue (TR) and total costs (TC) in the production process. It acts as an incentive or reward for entrepreneurship.
- Profit is calculated using the formula $TR - TC$.
- Hence, profit maximization occurs when the positive difference between TR and TC is at its greatest.

■ Total revenue and total costs (AO2)

- **Total revenue** (TR) is the overall amount of money received by a firm from selling its output of goods and/or services. For example, Nike and Adidas receive most of their revenues from the sale of sports apparel and sports equipment.
- It is calculated using the formula $TR = P \times Q$, where P = price and Q = quantity sold.
- **Costs** are the expenditures of a firm incurred in the production process. Costs can be classified as either fixed or variable:
 - **Fixed costs** – expenses that do not change with the level of output, such as rent, salaries and loan interest repayments.
 - **Variable costs** – spending linked to the firm's level of output, such as raw material costs and wages.

- **Total costs** are the aggregate amount of production costs spent on the output of a particular good or service. TC is calculated using the formula $TC = TFC + TVC$, where TFC = total fixed costs and TVC = total variable costs.

■ Marginal cost and marginal revenue (AO2)

- **Marginal revenue** (MR) is the additional revenue received from the sale of an extra unit of output. It is calculated by dividing the change (Δ) in total revenue by the change in the quantity of output:

$$MR = \frac{\Delta TR}{\Delta Q}$$

- **Marginal cost** (MC) is the additional cost of producing an extra unit of output. It is calculated by dividing the change (Δ) in total costs by the change in the quantity of output:

$$MC = \frac{\Delta TC}{\Delta Q}$$

TOP TIP!

Students often use the words *cost* and *price* interchangeably. However, economists refer to **cost** in terms of the cost of production. By contrast, **price** is the amount paid by consumers of a good or service that has been produced or provided.

- The profit-maximizing condition is the output level where $MC = MR$. This is because:
 - When $MR > MC$, the $\Delta TR > \Delta TC$, so the firm can increase its output to gain more profit.
 - When $MC > MR$, the $\Delta TC > \Delta TR$, so the firm should reduce its output to minimize losses.
 - Therefore, when $MC = MR$ there is no change in profits, that is, this is the level of output where profit is maximized.

■ Abnormal profit (A02, A04)

- **Abnormal profit** (also called **supernormal profit** or **economic profit**) refers to the profit of a firm that is over and above its normal profit (when $TR = TC$ or when $AR > AC$). Note that economists include implicit costs or opportunity costs when calculating profit.
- Alternatively, abnormal profit can be described as profit in excess of the amount needed to generate a return on the firm's investment.
- **Average revenue** (AR) refers to the median price received from the sale of a good or service. It is calculated by using the formula:

$$AR = \frac{TR}{Q}$$

TOP TIP!

Mathematically, average revenue is the same as the median price. This is because:

$$AR = \frac{TR}{Q} = \frac{(P \times Q)}{Q} = P$$

- **Average cost** is the cost per unit of production. It is calculated by dividing the total costs (TC) by the quantity of output (Q):

$$AC = \frac{TC}{Q}$$
- Abnormal profit occurs when average revenue (AR) is greater than average cost (AC), that is, $AR > AC$.
- The existence of economic profit creates incentives for existing firms to produce and for new firms to enter the market.

■ Normal profit (A02, A04)

- **Normal profit** is the minimum amount of profit needed to keep a firm in business. Hence, it is also referred to as **zero economic profit** and occurs at the point where a firm breaks even by covering both economic and implicit costs from its total revenue.
- The condition for normal profit is $AR = AC$.
- Unlike accountants, economists regard normal profit as a cost of production because without this there is no incentive for the good or service to be provided.

■ Losses (A02, A04)

- Firms make a loss (negative profit) if production costs exceed total revenue, that is, $TC > TR$ or $AC > AR$.
- This is because the firm's price (average revenue) is not sufficient to cover its unit costs of production (average cost). Hence, losses occur when $AR < AC$.

TOP TIP!

If a firm earns zero economic profit, this means it earns normal profit. Hence, zero economic profit does not mean the firm earns zero profit – it does earn some profit, but this is not abnormal profit.

- While it is possible for a loss-making firm to remain operational in the short run, this is not sustainable. Firms need to pay their suppliers, workers and financiers so must earn at least normal profit in order to continue operating in the long run.

■ **Table 14.1** Summary of costs and revenues formulae

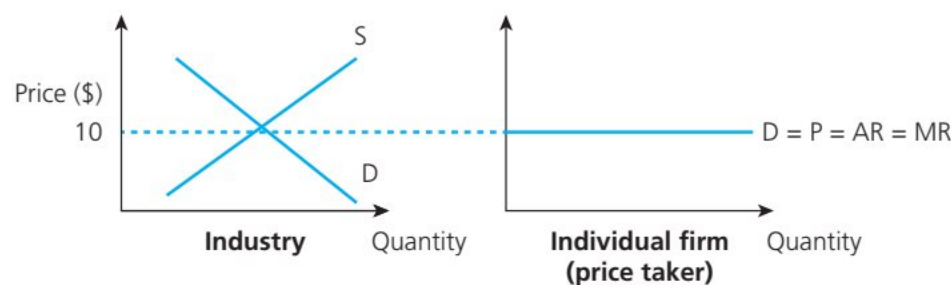
Type of cost or revenue	Formula	Annotation
Average cost (AC)	Total costs \div Quantity produced	$AC = TC \div Q$
Average revenue (AR) or price (P)	Total revenue \div Quantity traded	$AR = TR \div Q$
Marginal cost (MC)	Change in total costs \div Change in output level	$MC = \Delta TC \div \Delta Q$
Marginal revenue (MR)	Change in total revenue \div Change in output level	$MR = \Delta TR \div \Delta Q$
Total costs (TC)	Total fixed costs + Total variable costs	$TC = TFC + TVC$
Total revenue (TR)	Unit price \times Quantity traded	$TR = P \times Q$

■ Degrees of market power (AO3, AO4)

Market power refers to the ability of a firm to set the price of a good or service by influencing the market supply.

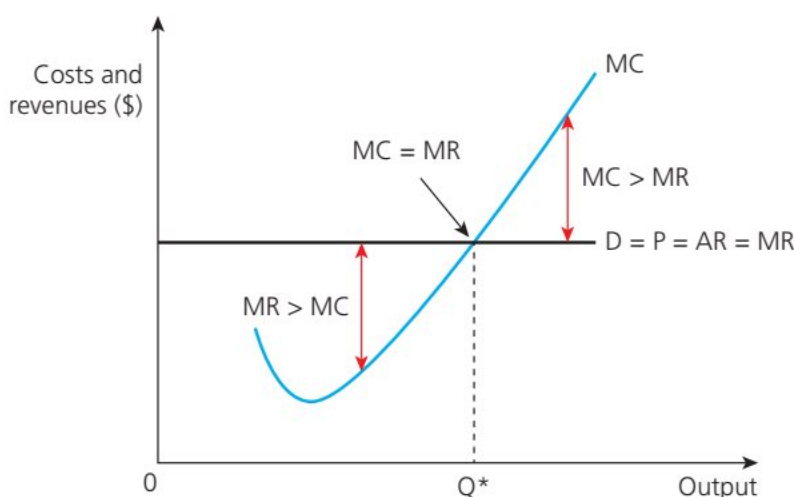
■ Perfect competition

- In perfect competition, there is an extremely high degree of competition with no individual firm being large enough to have any market power to influence the price (as they are price takers) or the quantity traded.



■ **Figure 14.2** Perfectly competitive firms are price takers

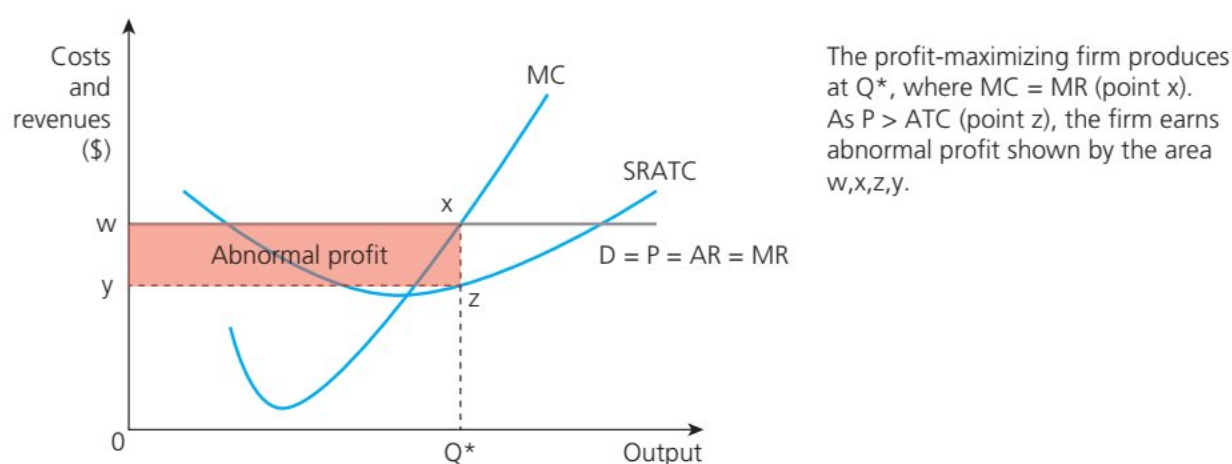
- In Figure 14.2, the perfectly competitive firm's selling price (\$10) is determined by the market forces of demand and supply, creating a market equilibrium price of \$10. The individual firm does not have any market power to set the price.
- For perfectly competitive firms, the average revenue curve (AR) and the marginal revenue curve (MR) are equal because they receive the same price for each successive unit of output, that is, $AR = MR$.



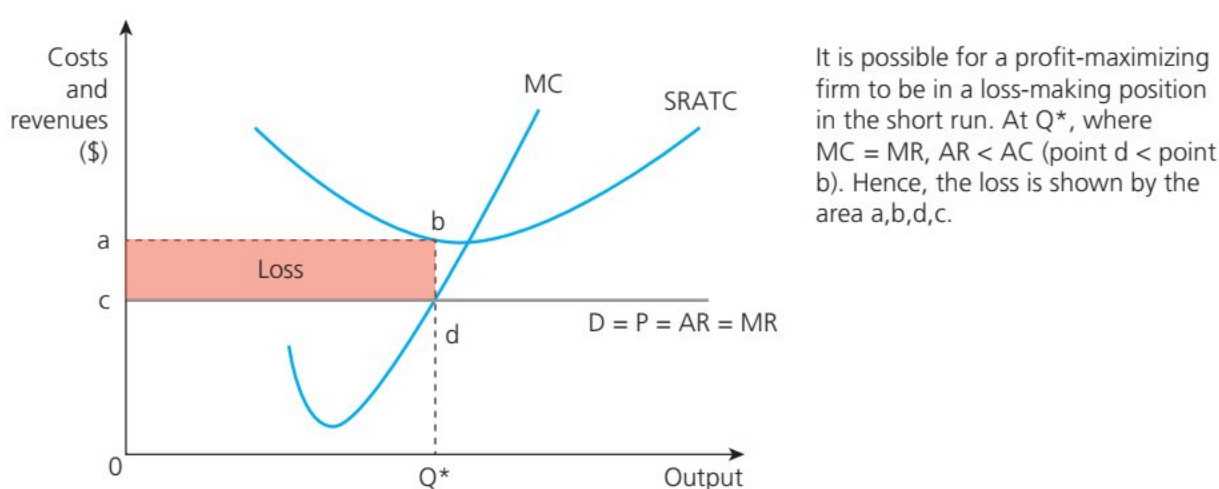
■ **Figure 14.3** Profit-maximizing position for a price taker

- Firms in perfect competition are profit maximizers, so operate at the output level where $MC = MR$.
- In Figure 14.3, profit maximization occurs at Q^* (the output level where $MC = MR$). If the firm produces less than Q^* , $MR > MC$ so the firm would gain additional profit by raising output. Output beyond Q^* means the firm's profit will fall as $MC > MR$.

- In the short run, a perfectly competitive firm can earn normal profit (Figure 14.3), abnormal profit (Figure 14.4), or losses (Figure 14.5).

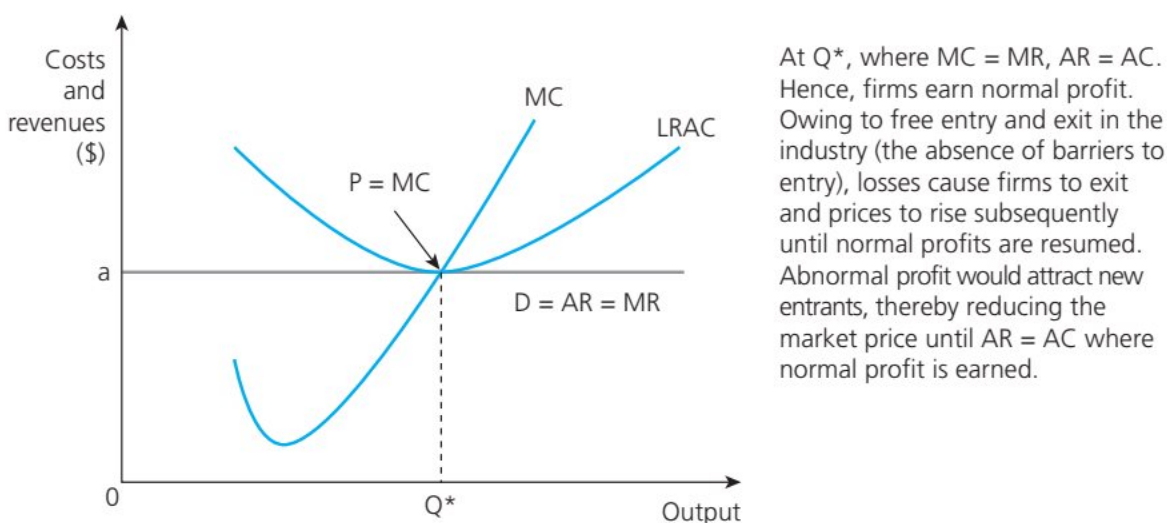


■ **Figure 14.4** Short run abnormal profit in perfect competition



■ **Figure 14.5** Short run losses in perfect competition

- In the long run, perfectly competitive firms can earn only normal profits (Figure 14.6), where $AR = AC$.
- This means the long run condition for profit-maximizing firms in perfect competition is $MR = MC = AR = AC$. This also means the industry is allocatively efficient.



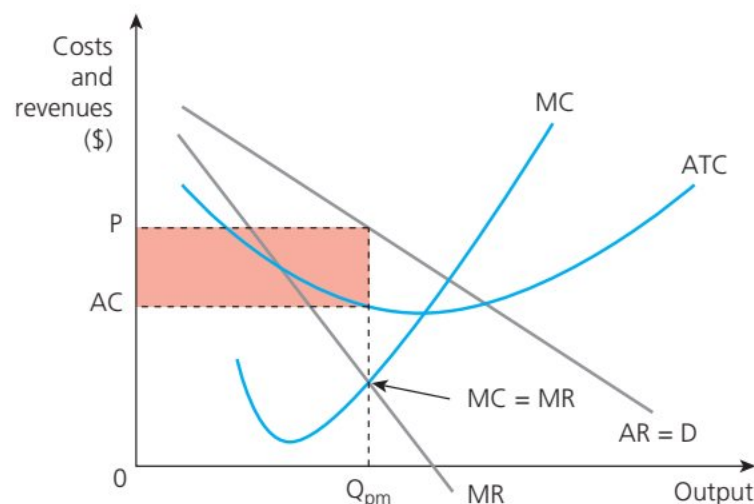
■ **Figure 14.6** Long run profit maximization in perfect competition

- **Allocative efficiency** refers to making the best use of an economy's scarce resources, thereby minimizing or eliminating waste. Hence, social welfare is maximized if allocative efficiency is achieved, that is, community surplus (the sum of consumer surplus and producer surplus) is maximized.
- Allocative efficiency occurs at $P = MC$ (see Figure 14.6). This is because the price that consumers are willing and able to pay matches that of the producers, so it is not possible to reallocate resources in order to make one party better off without making the other party worse off.

- Hence, firms competing in perfectly competitive markets are unique in being able to profit maximize without compromising allocative efficiency.
- By contrast, imperfect competition means that firms have varying degrees of market power, that is, price-setting ability. Imperfect competition exists in the following market structures: (1) monopoly, (2) oligopoly, and (3) monopolistic competition.

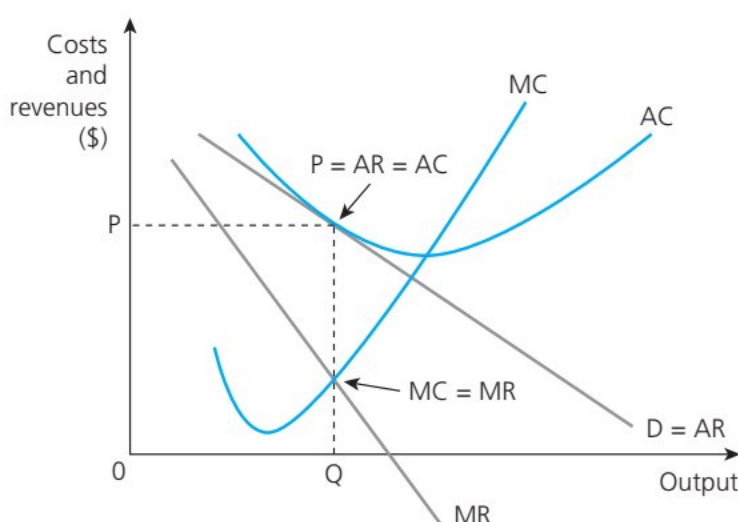
■ Monopoly (AO3, AO4)

- A **monopoly** is a market structure where there is a single supplier of a particular good or service, which thus has the power to influence the market supply and price. Hence, it is a price maker (or price setter).
- A rational monopolist is assumed to operate at the profit-maximizing level of output, that is, where $MC = MR$.
- Unlike firms that sell homogeneous products in perfect competition, firms operating in imperfect competition face a downward sloping demand ($D = AR$) curve. As there is a single supplier, the firm is the industry so the monopolist must reduce price in order to sell more output.
- Unlike in perfect competition, a monopolist enjoys market power, so its price is set higher than the marginal costs of production ($P = AR > MC$), enabling the firm to enjoy abnormal profit in the short run and the long run.

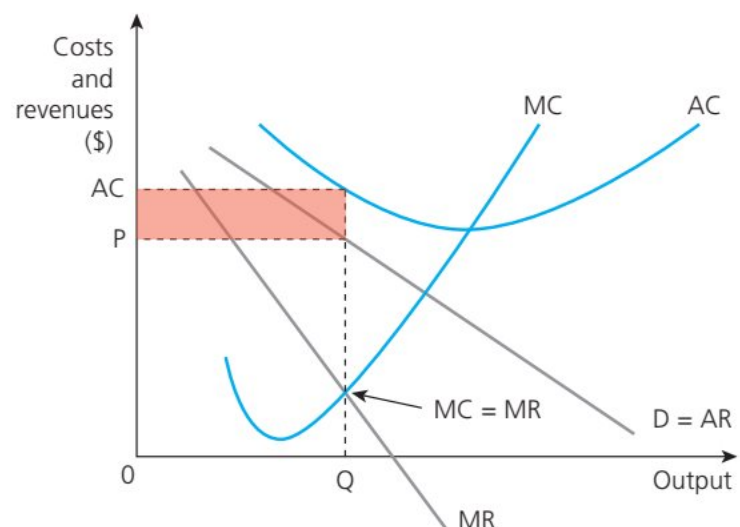


■ **Figure 14.7** Profit maximization in monopoly (short and long run positions)

- A monopolist might also earn only normal profit (zero economic profit) in the short run (Figure 14.8). This occurs when $P = AR = AC$. This happens if the monopolist sets the price low enough to intentionally deter potential entrants to the market.



■ **Figure 14.8** Short run normal profit position for a monopolist



■ **Figure 14.9** Short run loss minimization position for a monopolist

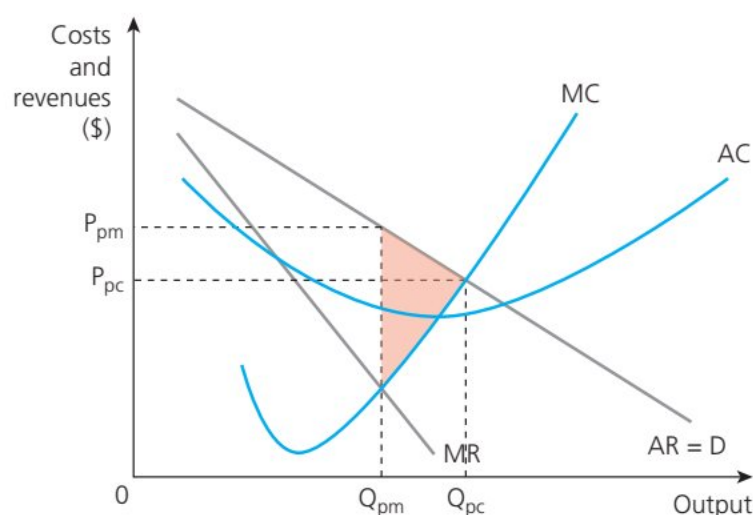
- A third possibility is the monopolist can make losses in the short run if it deliberately sets the price below unit costs of production, that is, $AC > P$ (Figure 14.9). The most likely reason for this loss minimization position is the monopolist's anti-competitive behaviour to prevent new firms from competing in the market.
- However, the nature of high entry barriers means it is assumed that the profit-maximizing monopolist will raise its price above its average cost in the long run, so that $P = AR > MC$, and $AR > AC$ (Figure 14.9).

TOP TIP!

Students who suggest that a monopolist cannot make a loss, due to the lack of competition, need to consider *why* a monopolist might deliberately set its price below average cost in the short run.

■ Allocative inefficiency (market failure) and welfare loss in a monopoly (A03, A04)

- Unlike perfectly competitive firms, monopolies will not achieve efficiency. A profit-maximizing monopoly lacks any incentive or competitive pressure to operate at the lowest point on its AC curve (Figure 14.10). Instead, the firm limits market supply (to Q_{pm}), enabling it to charge a higher price (P_{pm}) than would be the case in a perfectly competitive market (P_{pc}).



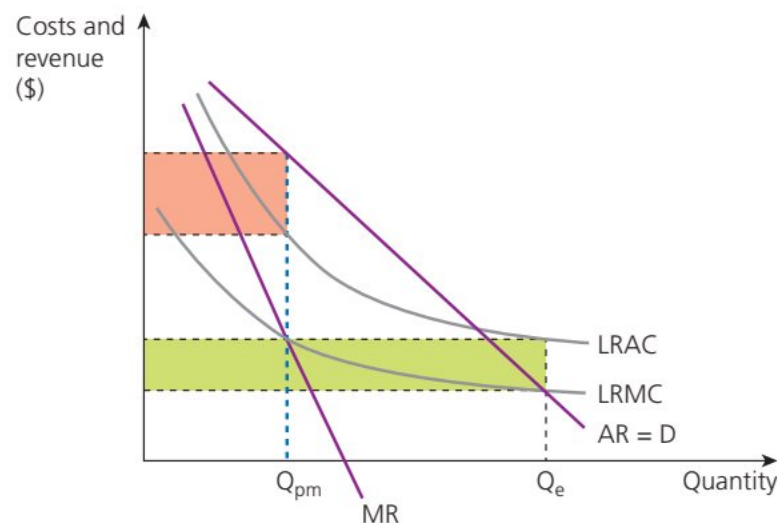
■ Figure 14.10 Monopoly and inefficiency

- The lack of competition in the industry means $P > MC$ at the profit-maximizing level of output. For a perfectly competitive industry, the output would be higher at Q_{pc} and price would be lower at P_{pc} .
- It can be seen that at the profit-maximizing output (Q_{pm} , where the firm's $MC = MR$), consumers pay more (higher price) for a lower amount of output (restricted output).
- The resulting welfare loss (the combined loss of consumer and producer surplus) is shown by the shaded area. Hence, monopoly is an inefficient market structure.

■ Natural monopoly (A03, A04)

- A **natural monopoly** exists when the industry can sustain only one supplier to avoid wasteful competition and to maximize economies of scale by having a single provider.
- Natural monopolies exist in industries that have extremely high set-up costs, fixed costs and sunk costs (irrecoverable costs) required to ensure supply of a good or service. Hence, these costs can deter firms from entering the industry.
- For example, it is more economical to have a single supplier of postal services, gas pipes, telephone cables, electricity cables and railway tracks as a monopolist can provide these with substantial cost savings compared with many smaller firms in direct competition with each other.

- Hence, trying to increase competition in such industries actually creates a potential loss of allocative efficiency because allowing competition would mean a wasteful duplication of scarce resources.



- The unregulated profit-maximizing monopolist will supply at Q_{pm} , where $MC = MR$, thus earning abnormal profit (shown by the pink area).
- The monopolist can achieve huge cost savings by operating at a larger scale along its LRAC curve, supplying Q_e output where $P = MC$. However, the firm will make a loss (shown by the green area). The loss can be subsidized by the government to encourage more production.

■ **Figure 14.11** Natural monopoly

- Despite their inefficiencies, natural monopolies can be desirable overall. As a monopolist controls the market supply, it can achieve huge economies of scale, that is, it can sell larger quantities *and* at a lower price.
- Unlike small but highly competitive firms, a natural monopolist is more likely to have the financial ability to fund research and development (R&D) from its abnormal profits. R&D helps to facilitate innovation, expand productive capacity and improve the international competitiveness of the economy.
- Nevertheless, as there is the potential for natural monopolists to exploit their power, governments tend to nationalize these industries or heavily regulate them to protect the general public.

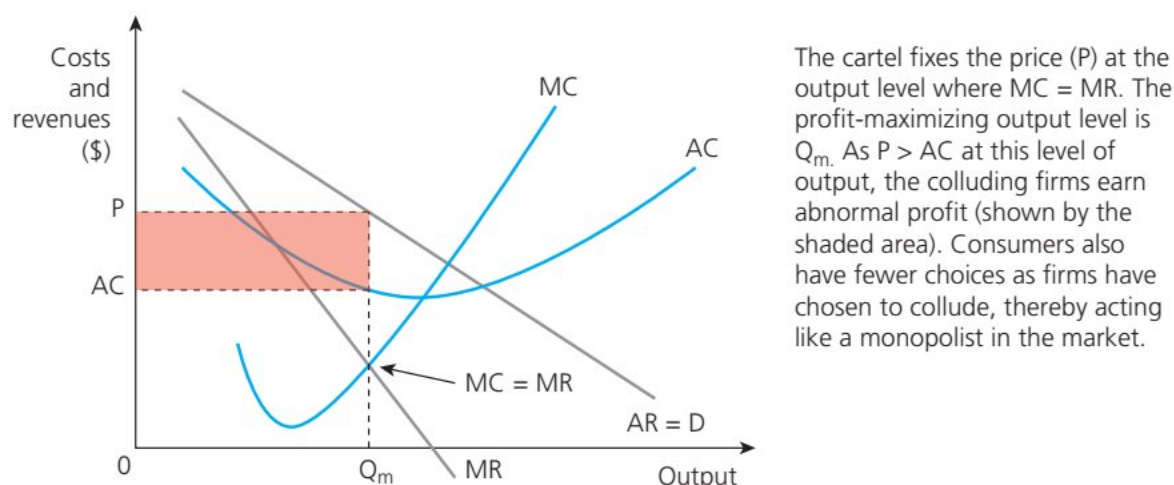
■ Oligopoly (AO3, AO4)

- An **oligopoly** is a market structure in which a few large firms, each with a high degree of market power, dominate the industry.
- There are two broad categories of oligopoly: collusive (creating incentives for firms to collude to increase their market power) and non-collusive (incentive for firms to compete with one another).

■ Collusive oligopoly (AO3, AO4)

- **Collusion** is the agreement between two or more oligopolistic firms to limit competition by restrictive trade practices, such as price fixing or collectively limiting output in order to manipulate the market price.
- The incentive to collude comes from the potential to earn abnormal profits by restricting supply (thereby forcing up the market price) and creating artificial barriers to entry, which prevents firms from entering the industry. Formally, such an alliance of oligopolistic firms is called a **cartel**.
- Collusive oligopolies or cartels are illegal in many countries as they are anti-competitive. However, identifying and breaking up cartels can be challenging as it is often difficult to prove price fixing, especially in the case of tacit collusion rather than open collusion.

- For collusion to be effective, there needs to be mutual trust within the group of colluding firms as well as high barriers to entry to prevent potential entrants from competing in the industry. Collusion is also more effective and easier to achieve if a very small number of dominant firms in an industry produce a homogeneous product.



■ **Figure 14.12** Collusive oligopoly acting as a monopoly

- In reality, cartels often collapse because individual firms have a tendency to cheat (lower their price and/or increase output) in order to improve their own profits at the expense of rival firms in the industry.

■ Non-collusive oligopoly (A03)

- **Non-collusive oligopoly** (or **competitive oligopoly**) exists where firms in the industry compete independently, considering the likely or possible actions of their rivals, that is, there is mutual interdependence.
- Each oligopolistic firm embarks upon a particular strategy (price and non-price factors) without conspiring with its competitors, yet each firm needs to consider the possible reactions and strategies of its competitors due to their high degree of market power.
- Common features of firms operating in a competitive oligopoly include: (1) interdependence, (2) risk of price wars, (3) incentives to collude, and (4) incentives to cheat.
 - **Interdependence** – This means that oligopolistic firms consider the decisions and behaviours of their competitors when determining their own pricing and non-pricing strategies because of each firm's high market power and the intensity of competition within the industry.
 - **Risk of price wars** – Competition can lead to firms continually reducing their prices in an attempt to gain a competitive advantage by enticing customers to switch brands. However, price wars tend to be short-lived as it is not in the best interest of firms continually to reduce prices.
 - **Incentives to collude** – In theory, it can be beneficial for oligopolistic firms to collude and operate as a joint monopoly, so all firms can raise their prices. However, the anti-competitive practices of cartels mean that collusion is illegal in most countries.
 - **Incentives to cheat** – Despite the probable gains from forming a collusive oligopoly, there are motivations for firms to 'cheat' (break away from the agreements of collusion) as they act in their own self-interest at the expense of competitors.

■ Allocative inefficiency (market failure)

- Like monopoly, collusive oligopoly is an allocatively inefficient market structure because firms have the market power to be able to charge more for their product than the marginal cost of production, that is, $P = AR > MC$.
- If the industry were exposed to a greater degree of competition, the market would be able to supply more *and* charge customers a lower price (see Figure 14.12).
- The existence of market power and asymmetric information causes market failures in the allocation of resources in oligopolistic markets. The suboptimal output and anti-competitive behaviour of firms in the industry contribute to allocative inefficiency.

■ The game theory payoff matrix (A03, A04)

- **Game theory** (or **prisoner's dilemma**) is an economic model that attempts to explain the nature of interdependence in oligopolistic markets. It considers the actions and behaviours of competitors when making decisions, based on various probable outcomes.
- In the 1950s, John Nash demonstrated that there are circumstances in which firms acting in their best interest can make themselves and the market worse off. Game theory shows that oligopolistic firms can increase their profits through collusion rather than competing independently, although this hinges on symmetrical information (the assumption that each firm can predict the behaviour of all others in the industry).
- However, the tendency for rival oligopolistic firms to cheat results in a suboptimal outcome for all firms. Consider the scenario in Figure 14.13 with two supermarkets, A and B, deciding whether to collude or compete.

		Firm B's pricing policy	
		High	Low
Firm A's price	High	A \$100m \$100m	B \$120m \$40m
	Low	C \$40m \$120m	D \$60m \$60m

■ **Figure 14.13** A simple game theory payoff matrix

- If supermarket A knew or expected that supermarket B was going to sell its products at a high price, then supermarket A should sell its products at a lower price as shown in quadrant C (as the payoff is \$120m rather than \$100m from charging a high price as shown in quadrant A).
- Similarly, if supermarket A knew or expected that supermarket B was going to sell at a low price, then it would also sell at a low price (quadrant D) because the \$60m payoff is more than the \$40m it would receive by selling at a high price (quadrant B).
- The game theory payoff matrix also works in the same way for supermarket B, that is, a low-price strategy will pay off more than a high price (quadrant B is a better outcome than quadrant A, and quadrant D gives a better payoff than quadrant C).
- In this case, a low-price strategy is the optimal strategy for both firms if they are in direct competition, which would generate the two firms a payoff of \$60m each.
- However, the matrix shows that if both firms agreed to collude and sold their products at a high price, they would receive a payoff of \$100m each (quadrant A).

- Hence, the low-price strategy of both firms (quadrant D) is the **Nash equilibrium** – a suboptimal outcome that arises due to firms directly competing and being unable to trust each other, which ultimately results in both making themselves worse off.

■ Price and non-price competition (A03, A04)

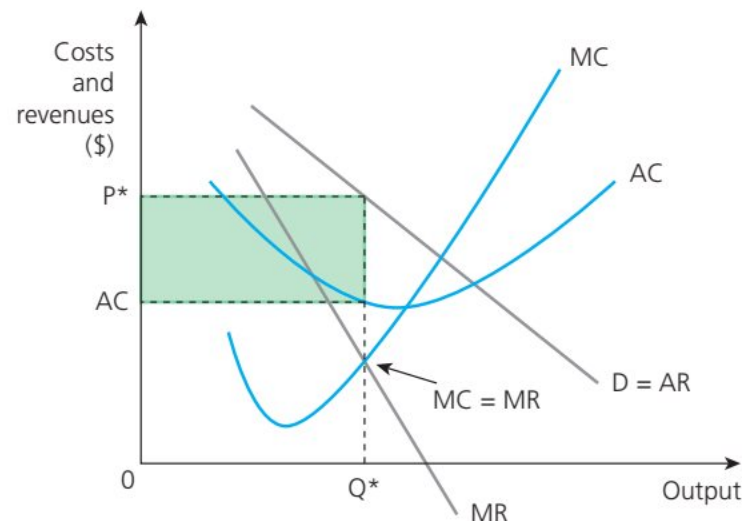
- **Price competition** is the use of pricing strategies to compete in an industry. Examples include:
 - setting prices in line with the average price charged by other firms in the industry
 - setting the price of a product below its cost in an attempt to encourage the customers of rival firms to switch
 - setting a low introductory price for new products to help establish market share
 - charging a low price to attract customers, raise brand awareness and develop customer loyalty
 - offering discounts for customers that bulk buy.
- However, the market power of rival oligopolists often means there is **price rigidity** (price stability) in non-collusive markets, simply because competitors would simply retaliate by matching any price cuts. By contrast, firms would not necessarily follow an increase in price in order to gain a competitive price advantage.
- **Non-price competition** refers to all other forms of competition. As oligopolistic firms can produce differentiated products, non-price competition is a key feature in such markets. Examples include:
 - advertising used extensively to differentiate between the products of competing firms
 - branding used in an attempt to gain awareness and customer loyalty
 - packaging used to distinguish products from rival products and to act as a distinctive selling point
 - product development such as special features and limited editions of a product or launching innovative products on the market
 - the quality of service can also give firms a competitive advantage over their oligopolistic rivals.

■ Measurement of market concentration (A03, A04)

- **Market concentration** measures the extent to which sales revenue in an industry is dominated by one or more of the largest firms, that is, the significance of the market share of firms. It is indicative of the degree of market power of these firms in the industry.
- A **concentration ratio** is used to measure the degree of market power in an industry by adding the combined market shares of the largest few firms in the market. The most common method is the **Herfindahl–Hirschman Index** (HHI), which gives a larger weighting to the market share of larger firms by squaring the value of their market share. Hence, the highest HHI number (for a pure monopoly) is 10,000 as the firm has 100 per cent market share. The higher the HHI, the more concentrated (less competitive) the industry will be.

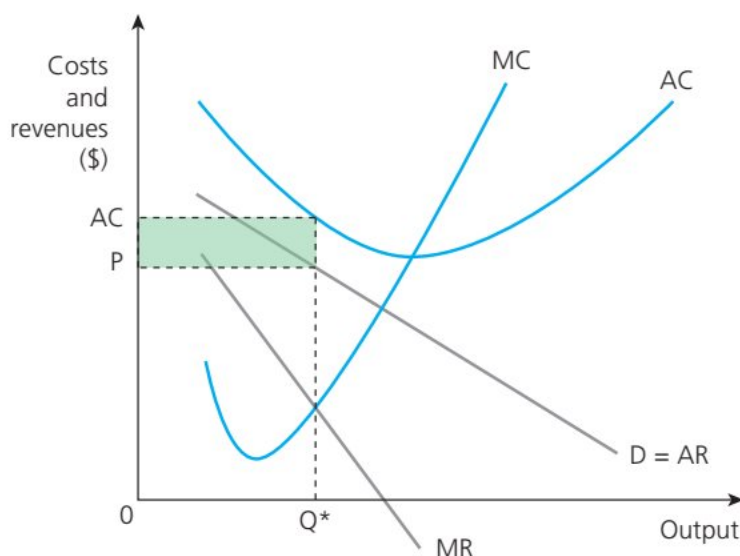
■ Monopolistic competition (AO3, AO4)

- Firms in **monopolistic competition** have a small degree of market power as they supply differentiated products and operate in industries with many firms, none of which is dominant enough to influence market outcomes (market price and supply).
- Firms operating in this market structure are able to earn some abnormal profit, although it is also possible for them to earn normal profit or losses (in the short run) due to many substitutes being available.
- As there are many more firms in the industry, each monopolistically competitive firm faces a relatively price elastic demand curve compared with oligopoly and monopoly.



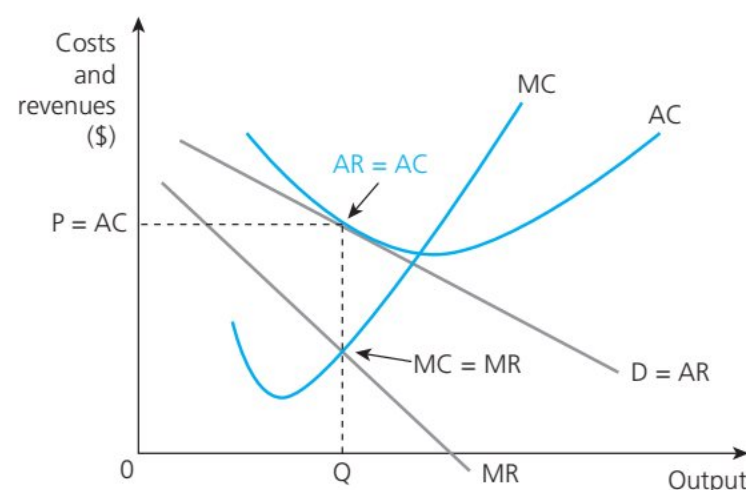
The firm operates at Q^* , where $MC = MR$. At this output level, $AR = P > AC$, so the firm earns abnormal profit (shown by the shaded area). However, in the long run, the absence of barriers to entry means new firms enter the contestable market, attracted by the prospect of abnormal profit. The subsequent increase in supply simply reduces the market price until $AR = P = AC$, thereby reverting all firms to a position of normal profit.

■ **Figure 14.14** Short run abnormal profit in monopolistic competition



Alternatively, the firm could be in a loss-making position in the short run. Here, the profit-maximizing firm operates at Q^* , but $AC > P$. The loss will cause firms to exit the industry, thereby reducing the market supply and subsequently raising the market price until $AR = P = AC$, that is, the industry returns to a position of normal profit in the long run.

■ **Figure 14.15** Short run loss position in monopolistic competition



The nature of free entry to and exit from the industry means firms will earn normal profit in the long run as $AR = P = AC$. Monopolistically competitive firms are unable to earn abnormal profit because firms have minimal market power due to the availability of many substitutes in the industry.

■ **Figure 14.16** Long run normal profit in monopolistic competition

TOP TIP!

Make sure you practise constructing the diagrams for this section of the syllabus, ensuring you pay attention to detail, such as:

- the MC curve intersecting the AC curve at its minimum point
- the gradient of the MR line is twice that of the AR line
- the $D = AR$ line for a monopolistically competitive firm is more price elastic than that for a monopolist
- the profit-maximizing firm operates at the level of output where $MC = MR$.

■ Monopolistic competition and allocative inefficiency (market failure) (A03, A04)

- Monopolistically competitive firms are not allocatively efficient in the short run or long run. They are unable to operate at the lowest point on the AC curve (where $P = MC = AC$) as there are limited opportunities for these firms to exploit economies of scale, that is, they struggle to get the demand needed to achieve such cost savings.
- Inefficiencies mean that consumers are deprived of access to a larger volume of output at a lower price.
- Compared with perfect competition, firms in monopolistic competition are less inefficient but do provide more product variety (differentiated output) for consumers.
- Inefficiencies and market failure (such as asymmetric information) can also occur in monopolistically competitive markets due to the vast number of choices that consumers have. Competition can be wasteful while information overload and misinformation are inefficient, which can all lead to market failures.

■ Advantages of large firms having significant market power (A03)

- While perfect competition can create greater efficiency gains, large firms with significant market power can benefit from: (1) economies of scale, and (2) abnormal profits.
- **Economies of scale** refer to cost-saving benefits from lower average costs of production due to an increase in the quantity of production. Economies of scale can be categorized as internal or external.
 - **Internal economies of scale** are lower average costs brought about by an increase in the size of a firm itself, such as through specialization and the division of labour (which lead to increased productivity) and efficiency gains.
 - **External economies of scale** are the cost-saving benefits from lower average costs due to an increase in the size of the industry in which the firm operates. Hence, all firms in the industry benefit, such as improved infrastructure in the local area.
- Abnormal profits may help to finance investments in research and development (R&D) and hence innovation. This helps large firms to maintain their market power and monopoly position in the long run. By contrast, perfectly competitive firms are unlikely to achieve the economic profits needed in the long run to be able to invest in R&D needed to create innovative products.

TOP TIP!

A natural monopoly enjoys internal and external economies of scale more than any other market structure. This is because the industry can sustain only one firm, so it gains from the significant scale of the operations, which reduces average costs of production.

TOP TIP!

'Economies of scale means that as a firm increases its output, its costs will fall.' What is incorrect about this statement?

When referring to economies of scale, it is important to reference average costs. Clearly it is cheaper to produce 10,000 cans of Coca-Cola than it is to produce 50,000 cans. However, it is cheaper to produce each can on a larger scale, that is, economies of scale reduce the long run average costs of production.

■ Risks in markets dominated by one or a few very large firms (AO3)

There are risks (or disadvantages) in markets dominated by one or a few very large firms (monopolies and oligopolies). These can be categorized as risks in terms of: (1) output, (2) price, and (3) consumer choice.

- **Risks in terms of output** – A lack of competition means that profit-maximizing monopolists are likely to supply less output than the social optimum, resulting in allocative inefficiency. This results in market failure due to under-provision and under-consumption.
- **Risks in terms of price** – Firms with significant market power are able to charge different customers different prices for essentially the same product owing to differences in their price elasticity of demand (PED). Essentially, this enables the dominant firm to charge higher prices due to the lack of competition.
- **Risks in terms of consumer choice** – The lack of competition and the nature of barriers to entry can also lead to a lack of incentives for a dominant firm to innovate and to provide choice for consumers.

■ Government intervention in response to abuse of significant market power (AO3)

Given the potential risks of markets dominated by one or a few very large firms, government intervention may be needed. Government responses to the abuse of significant market power include: (1) legislation and regulation, (2) government ownership, and (3) fines.

- **Legislation and regulation** – These laws and policies are used to control firms with significant market power. For example, European Competition Law prohibits anti-competitive practices and the abuse of monopoly power. Mergers and takeovers can be blocked if the authorities deem these to be anti-competitive. Governments can also use policies to make certain markets more contestable.
- **Government ownership** – Government ownership (or nationalization) of a firm with significant market power can help to ensure the firm is not run primarily for profit, but to provide an important service to the general public. However, the purchase of privately owned assets or industries by the government can be extremely expensive and comes at a large opportunity cost.
- **Fines** – There is a range of corrective measures that governments can use to penalize firms caught engaging in anti-competitive practices. Fines are financial penalties issued by governments for law infringements. For example, in 2019, Google was fined €1.49 billion (\$1.66bn) by the European Commission for antitrust laws relating to advertising. Fines and exposure can also damage the brand reputation of a firm.

TOP TIP!

'Monopolies are bad for the economy as they exploit consumers by charging higher prices or by limiting market supply.' What is incorrect about this statement?

Do not assume that all monopolies are 'bad' for the economy, especially in the case of natural monopolies. Instead, consider the extent to which the dominant firm acts in the best interest of the general public. Abuse of monopoly power is a type of market failure, so governments intervene to protect the interest of society as a whole.

PAPER 3 EXAM PRACTICE QUESTION 14.1 (HL ONLY)

The table below shows the costs and revenues for a firm that operates at 3,500 units of output per month:

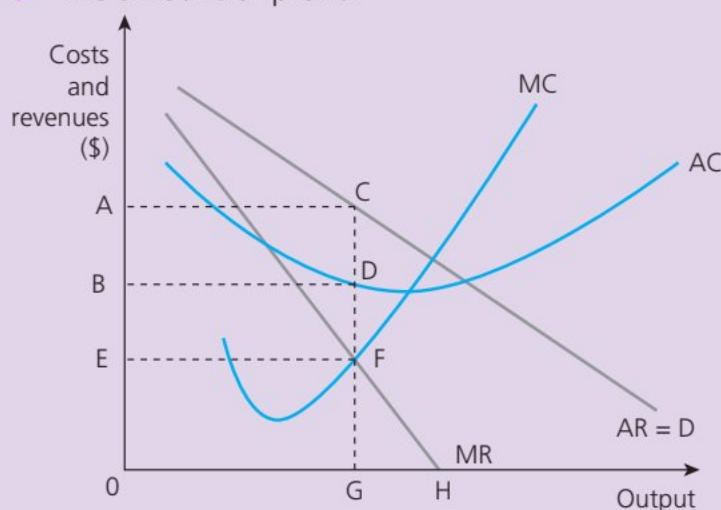
Item	Costs and revenues (\$)
Management salaries	\$18,000
Price	\$25
Raw materials per unit	\$12
Rent	\$11,000

- Calculate the total cost of producing 3,500 units. [2 marks]
- Calculate the profit made if the firm sells all of its output. [2 marks]

PAPER 3 EXAM PRACTICE QUESTION 14.2 (HL ONLY)

Use the diagram below to identify the following for a profit-maximizing monopolist:

- The output level. [1 mark]
- The price. [1 mark]
- The total costs. [1 mark]
- The amount of profit. [1 mark]



PAPER 1 EXAM PRACTICE QUESTION 14.3 (HL ONLY)

Explain why a monopolist is able to earn abnormal profits in the long run. [10 marks]

PAPER 3 EXAM PRACTICE QUESTION 14.4 (HL ONLY)

Refer to the market share data below for two different industries. Comment on the market concentration of these two industries. [2 marks]

- Industry A: Firm 1 = 30%, Firm 2 = 25% and Firm C = 10%
- Industry B: Firm 1 = 25%, Firm 2 = 20% and Firm C = 20%

PAPER 1 EXAM PRACTICE QUESTION 14.5 (HL ONLY)

Explain why product differentiation leads to a negatively sloped demand curve in monopolistic competition. [10 marks]

PAPER 1 EXAM PRACTICE QUESTION 14.6 (HL ONLY)

Using real-world examples, compare and contrast the model of monopolistic competition with oligopoly. [15 marks]

Chapter summary

- Market structure refers to the key characteristics of a particular market in terms of: (1) the number and size of firms in the market, (2) the degree and intensity of price and non-price competition, and (3) the nature of barriers to entry.
- The two extreme market structures are perfect competition and monopoly. Imperfect competition exists in the case of monopoly, oligopoly and monopolistic competition.
- Characteristics of perfect competition include: (1) many firms, (2) free entry, and (3) homogeneous products.
- Characteristics of monopoly include: (1) a single or dominant firm, (2) high barriers to entry, and (3) no close substitutes.
- Characteristics of oligopoly include: (1) a few large firms, (2) high barriers to entry, and (3) interdependence.
- Characteristics of monopolistic competition include: (1) many firms, (2) free entry, and (3) product differentiation.
- Rational producer behaviour assumes that all firms (in perfect and imperfect competition) aim for profit maximization. This happens when the difference between total revenue (TR) and total cost (TC) is at its highest level, or at the output level where marginal cost (MC) is equal to marginal revenue (MR).
- Firms earn normal profit when $AR = AC$, abnormal profit when $AR > AC$, and losses when $AR < AC$, where AR is average revenue and AC is average cost.
- Market power refers to the ability of a firm to manipulate market price and supply. Firms in perfect competition have no market power so are price takers, whereas oligopolists and monopolists are price setters.
- In perfect competition, due to the lack of market power, firms can earn abnormal profit or losses in the short run, but in the long run can only earn normal profit. However, it is theoretically a desirable market structure as competition leads to allocative efficiency ($P = AR = MC$).
- By contrast, monopolies are allocatively inefficient and result in welfare losses and market failures (due to restricted output and higher prices) if they abuse their market power. They are able to earn abnormal profit in both the short run and long run due to the nature of barriers to entry.
- A natural monopoly occurs when only one firm can operate in a market profitably due to natural barriers to entry and significant economies of scale.
- Collusive oligopoly (or a cartel) is the agreement between two or more dominant firms to limit competition by using restrictive trade practice, such as price fixing or collectively limiting output. The main goal of the cartel is to restrict competition in order to maximize the profits for the colluding firms that act as if they were a collective monopoly.
- Non-collusive oligopoly refers to a market structure where large dominant firms in an industry engage in price and/or non-price competition with each other.
- Typical features of collusive and non-collusive oligopoly include: (1) interdependence, (2) risk of price wars, (3) incentives to collude, and (4) incentives to cheat.
- Game theory is an economic model that attempts to explain interdependence in oligopolistic markets by considering the probable actions of competitors when making price and non-price decisions.

- The concentration ratio measures the degree of market power in an industry by adding the combined market share of the largest few firms.
- Firms in monopolistic competition can earn normal profit, abnormal profit or losses in the short run. The absence of barriers to entry means the market is contestable, so firms can only earn normal profit in the long run.
- The demand curve for monopolistically competitive firms is more price elastic than that for oligopolies and monopolies, due to the number of firms competing in the industry.
- Large firms, such as natural monopolies, can benefit from: (1) economies of scale, and (2) abnormal profits, which can be used to finance investments in R&D and innovations.
- Risks (disadvantages) of markets dominated by one or a few very large firms can be explained in terms of: (1) lower output, (2) higher prices, and (3) reduced consumer choice. Hence, imperfect competition is allocatively inefficient and causes market failures.
- Government responses to potentially anti-competitive behaviours of firms with high market power include: (1) legislation and regulation, (2) government ownership (or nationalization), and (3) fines, that is, financial penalties.

The market's inability to achieve equity (HL only)

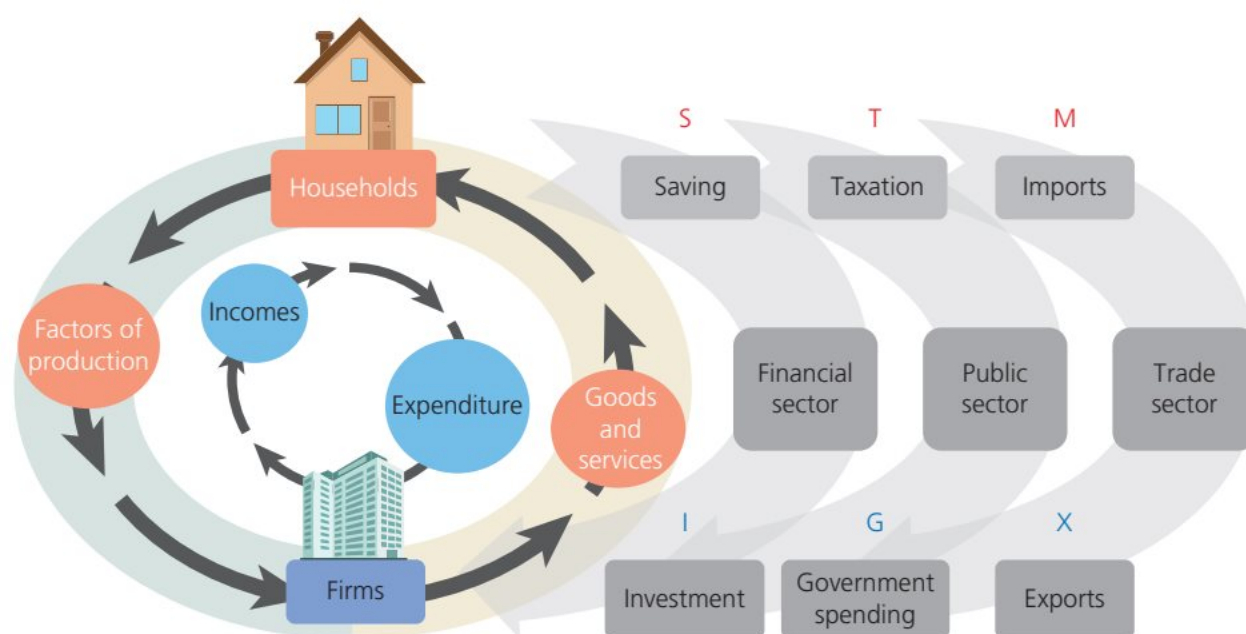
- **Workings of the free market economy may result in an unequal distribution of income and wealth (AO2)**
- The operations of the free market economy may result in an unequal distribution of income and wealth due to differences in economic opportunities.
- Income and wealth are indicators of standards of living in the economy. However, both income and wealth are unequally distributed in a free market economy. Such inequalities can be highly detrimental to the economic well-being of society as a whole.
- The degree of inequalities also depends on what kinds of income are taken into account. Income is the sum of wages (and salaries), rent, interest and profit, that is, the rewards for the four factors of production (labour, land, capital and enterprise respectively).
- The unequal distribution of factor resources means it is inevitable that there will be an unequal distribution of income and wealth in a free market economy, as the rich get richer and the poor get relatively poorer.
- A person's *income* is a flow concept referring to money received on a regular basis from economic activity, such as wages and salaries from employment. When income is unevenly distributed in a region or country, *income inequality* exists.
- By contrast, a person's *wealth* is a stock concept referring to the value of their accumulation or portfolio of assets, such as property, land, motor vehicles, stocks and shares, and savings. *Wealth inequality* exists when there is an unequal distribution of these assets across the economy.

TOP TIP!

Income and wealth inequalities exist within a country as well as between countries. When writing your answers, make sure you write in context and use relevant examples to fully explain your arguments.

■ The circular flow model (AO2, AO4)

- The **circular flow model** can be used to illustrate how the workings of a free market economy may result in an unequal distribution of income and wealth. The model forms the basis for understanding the macroeconomy and for explaining how national income, output and expenditure are generated over time (see Figure 15.1).
- In a closed economy, households supply factors of production to firms in order to produce or supply goods and services. In return, firms provide factor incomes to households. With this income, households spend their income on goods and services produced by firms.
- In an open economy, the model shows that not all incomes are spent on goods and services produced by domestic firms, as there are both injections and withdrawals.
- Withdrawals (or leakages) come in the form of savings (S), taxation (T) and import expenditure (M). Injections comprise investment expenditure (I), government spending (G) and export earnings (X).



■ **Figure 15.1** The circular flow model

- Any imbalance in injections and leakages can result in different income flows resulting in inequalities in both income and wealth. Such imbalances include:
 - **Savings (S) and investments (I)** – The funds from savings are used by financiers such as banks to lend to businesses for investment purposes. The amount that individuals or households can save is dependent on numerous interrelated factors, such as differences in: (1) earnings from employment, (2) parental wealth and inheritance, (3) social attitudes towards women, including gender equality, and (4) equal opportunities legislation and anti-discrimination laws. Investment expenditure occurs partly because firms need to replace or upgrade existing machinery and capital equipment, but also because firms may wish to increase their production capacity.
 - **Taxation (T) and government spending (G)** – Households and firms pay taxes (T) that are used to fund government expenditure (G). Tax systems differ across the world. In general, a more progressive tax system helps to redistribute income and wealth from high-income earners to those on low or no incomes. Hence, progressive taxes help to reduce income and wealth inequalities. By contrast, large disparities in income and wealth exist in countries with a flat tax structure that favours high-income individuals, households and firms.
 - **Imports (M) and exports (X)** – In an open economy, domestic households and firms spend some of their income on imports, that is, goods and services from abroad. By contrast, foreign consumers and firms may purchase exports, that is, goods and services supplied by domestic firms. Income and wealth disparities arise between countries where the value of X and M are not balanced – countries with net export earnings tend to see an increase in their overall standard of living.
- Essentially, changes in net injections (J) and withdrawals (W) directly affect the level of national income. For example, income inequalities arise because labour resources are compensated differently. This has a direct impact on the value of savings and investments in the economy, thereby influencing differences in income and wealth between individuals and firms. For a nation, if $M > X$, the net leakage of income from the domestic economy causes greater inequalities between low-income and high-income countries. In the long run, this will cause negative economic growth, a rise in unemployment and poverty.

- Overall, if $W > J$, then the level of national income and employment will fall, resulting in a recession in the country. If prolonged, this will cause poverty and greater income and wealth inequalities. By contrast, if $(I + G + X) > (S + T + M)$, then national income and employment will rise, resulting in an economic boom and greater economic prosperity in the country.

PAPER 1 EXAM PRACTICE QUESTION 15.1 (HL ONLY)

Explain why the free market economy is unable to achieve an equal distribution of income and wealth.

[10 marks]

Chapter summary

- The operation of the free market economy is likely to result in an unequal distribution of income and wealth.
- Economists use income and wealth as indicators of living standards for individuals, households and the economy as a whole.
- Income inequality refers to income being unevenly distributed in a community or country, while wealth inequality is the unequal distribution of fixed assets across the economy.
- Income is a flow concept referring to the money a person receives from the production process; for example, wages and salaries.
- Wealth is a stock concept referring to the value of accumulated assets; for example, property, land and savings.
- The circular flow model can be used to explain the free market economy's inability to achieve equity in the distribution of income and wealth.
- Essentially, income inequalities arise because labour and capital resources are compensated differently.
- Any imbalance in injections and leakages from the circular flow can result in different income flows, resulting in both income and wealth inequalities.
- If the sum of leakages ($S + T + M$) exceeds the sum of injections ($I + G + X$), then national income and employment will fall, resulting in a recession in the country and greater disparities between the wealthy and the poor.
- Similarly, if the total value of a country's imports exceeds that of its exports ($M > X$), there will be a net leakage from the economy, which causes greater inequalities between low-income and high-income nations.

Measuring economic activity and illustrating its variations

■ National income accounting as a measure of economic activity (AO2, AO4)

- National income accounting is used to measure the level of economic activity in the economy. It refers to the monetary value of all the goods and services produced in a country during a year.
- The most common measure of national income is to calculate the country's gross domestic product (GDP). This is the value of the output of all goods and services within the nation, including the output of foreign multinational companies operating within the country.

■ The income, output and expenditure approaches to national income accounting

There are three different approaches that can be used to measuring economic activity: (1) the income method, (2) the output method, and (3) the expenditure method.

- **The income method** – This method is used to measure national income (Y) by calculating the value of all factor incomes earned in the economy per year, that is, it is the sum of wages and salaries (labour), rent (land), interest (capital) and profits (enterprise). Individuals and households receive factor incomes for the output they produce.
- **The output method** – This method is used to measure national output (O) by calculating the value of all final (finished) goods and services produced within the economy during a year.
- **The expenditure method** – This method is used to measure national expenditure (E) by calculating the total value of all spending on goods and services within the economy during the year. The expenditure approach aggregates the following values:
 - Consumption expenditure (C) – refers to spending by individuals and households on goods and services. It is the single largest component of national expenditure.
 - Investment expenditure (I) – refers to spending by all firms within the economy in order to increase their capital stock and production capacity. This is sometimes referred to as *gross fixed capital formation*.
 - Government spending (G) – refers to spending of the public sector.
 - Net export expenditure (X – M) – refers to the difference between the country's export earnings and its import expenditure during the year.
- Hence, the expenditure approach is expressed by the formula $GDP = C + I + G + (X - M)$.
- Essentially, the three approaches to measuring the level of economic activity measure the same thing but use a different set of data. Therefore, in theory, national income accounting will result in equal final figures or values, that is, $O = Y = E$.
- In reality, any discrepancies in the figures for the three approaches are due to inaccuracies and variations in the methods of data collection.

TOP TIP!

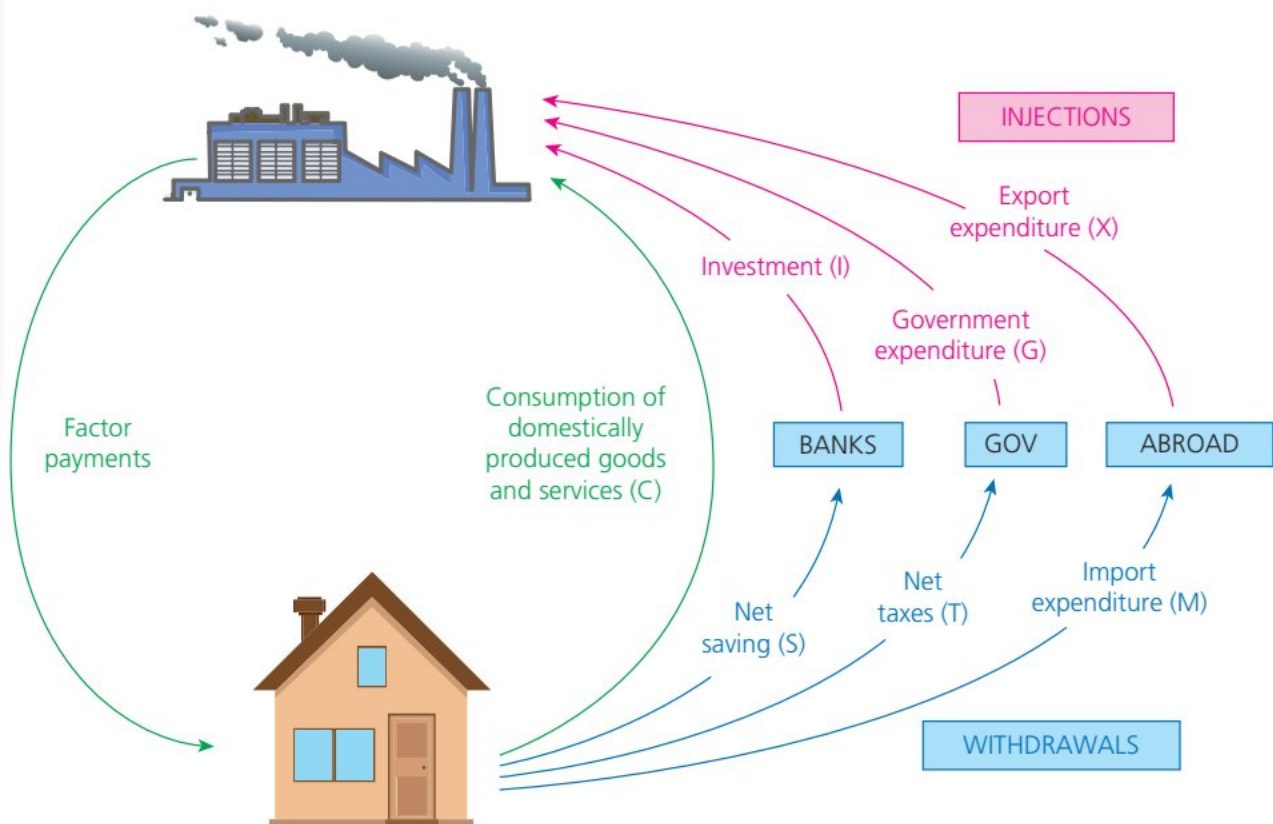
Note that transfer payments (such as unemployment benefits and state pensions) are not included in government expenditure (G) for the purpose of calculating GDP because there is no corresponding output generated.

TOP TIP!

Only the value of the final output of goods and services is included in the calculation of GDP. This is to prevent double counting, such as the value of manufactured products sold to retailers during the production process.

■ National income accounting and the circular flow of income model

- The circular flow of income is a macroeconomic model used to explain how national income and economic activity are determined, based on the interactions of economic decision makers (see Figure 16.1).
- Households comprise individuals who provide their labour services to firms in return for income (factor payments). With this income, households consume goods and services produced by firms.
- The government exists to maximize social welfare for the society as a whole. It taxes households and firms (on incomes and profits) and uses the tax revenues to fund government spending on items such as public and merit goods.
- Households do not spend all of their after-tax income if they choose to save some of this in a bank or other financial institution. With the money saved, banks and financiers lend the money to businesses for investment purposes.
- Domestic households might also spend some of their income on goods and services from overseas (imports). By contrast, the economy earns income from overseas households that purchase domestically produced goods and services (exports).



■ **Figure 16.1** The circular flow of income model

- The circular flow of income model includes both leakages (or withdrawals) and injections. Leakages remove money from the economy whereas injections add money to it.
- There are three types of withdrawals (W): savings (S), taxes (T) and import expenditure (M). There are three types of injections (J): investment (I), government spending (G) and export earnings (X).
- The model shows that if $W > J$, then the level of economic activity declines, whereas economic activity increases if $J > W$. Hence, equilibrium national income exists when $W = J$ or $(S + T + M) = (I + G + X)$.
- Note that the model shows equivalence of the three measures of economic activity because national income (Y) is the return from generating national output (O), which has been purchased by national expenditure (E). Hence, the circular flow of income model shows that $Y = O = E$.

TOP TIP!

The circular flow of income model appears three times in the syllabus:

- Unit 1.1 – draw a circular flow of income model diagram, with leakages and injections to explain the interdependence between economic decision makers interacting and making choices in an economy.
- Unit 2.12 (HL only) – draw the circular flow model diagram to show why the free market results in inequalities.
- Unit 3.1 – draw a circular flow of income model diagram to show the interactions between decision makers, as well as leakages and injections.

Therefore, it is of utmost importance that you practise constructing the circular flow of income diagram, including the three leakages and injections.

■ Nominal gross domestic product (GDP) as a measure of national output (AO2, AO4)

- **Gross domestic product** (GDP) is the value of all final output of goods and services produced within a country during a year. Using the expenditure method of measuring economic activity, $GDP = C + I + G + (X - M)$.
- **Nominal GDP** measures national output using *current prices*, that is, the actual value of GDP at the time of measurement. Therefore, it does not make adjustments for the effects of inflation in the calculation of the value or price of goods and services.

■ Nominal gross national income (GNI) as a measure of national output (AO2, AO4)

- Gross national income (GNI) is the country's total income earned from all its factors of production, irrespective of where they are located, such as the net income of the country's multinational companies that operate overseas. This income is known as *net factor income from abroad* (or net property income from abroad).
- Hence, nominal GNI calculations include the country's GDP along with net factor incomes earned from abroad (such as net interest, profits and dividends), that is, $\text{nominal GNI} = \text{Nominal GDP} + \text{Net factor income from abroad}$.

■ Real GDP and real GNI (AO2, AO4)

- Real GDP and real GNI take account of fluctuations in the general price level over time (inflation).
- Using real GDP or real GNI figures to measure economic activity allows better comparisons of economic activity over time by using **constant prices** (the values of real GDP and real GNI that are adjusted for inflation).
- To calculate real GDP (or real GNI), the values of nominal GDP (or nominal GNI) are adjusted for inflation by using a **GDP deflator** (or **price deflator**). This is used to convert GDP or GNI at current prices to GDP or GNI at constant prices.
- For example, a GDP deflator of 1.065 means that prices have risen by an average of 6.5 per cent since the base year. The following formula is used to deflate the value of nominal GDP (or GNI) in order to get the real GDP (or GNI) figure: $\text{Real GDP} = \text{Nominal GDP} \div \text{GDP deflator}$.

TOP TIP!

Make sure you can explain the difference between *current prices* and *constant prices*. National income accounts that are reported in current prices include the impact of inflation while those expressed as constant prices have the effects of inflation removed. The latter allows more meaningful comparisons of GDP and GNI over time and between countries.

■ Real GDP/GNI per person (per capita) (AO2, AO4)

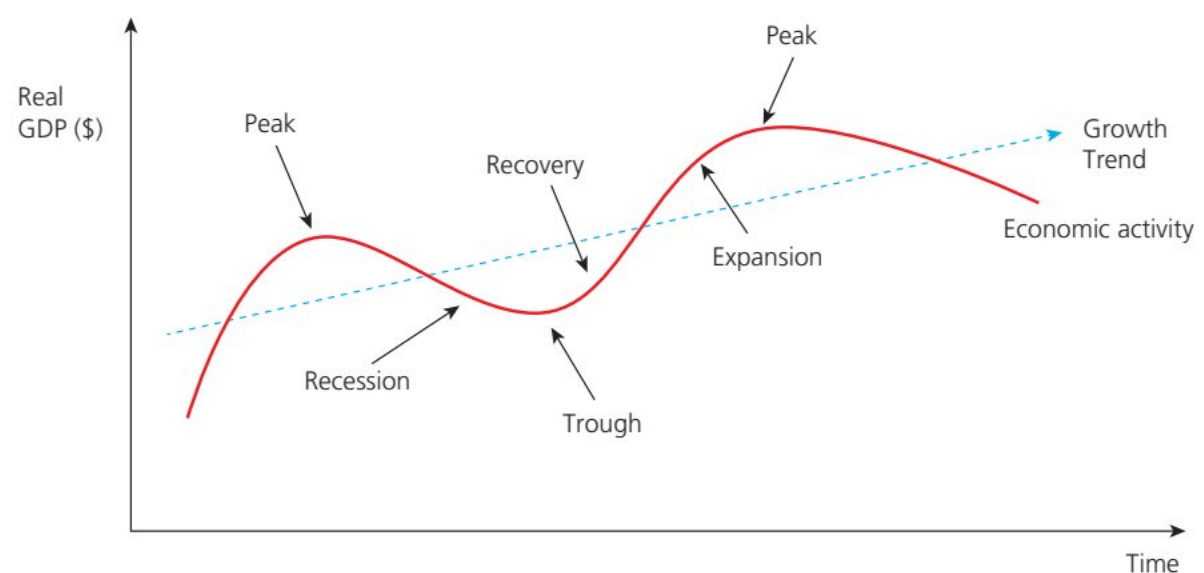
- Real GDP and real GNI per capita express the country's total national income in terms of income per person. Real GDP (or GNI) per capita is a way of measuring the standard of living for the average citizen in the country.
- Real GDP per capita is calculated by using the formula: $\text{Real GDP per capita} = \text{Real GDP} \div \text{Population size}$.
- Real GNI per capita is calculated in a similar way: $\text{Real GNI per capita} = \text{Real GNI} \div \text{Population size}$.

■ Real GDP/GNI per capita at purchasing power parity (PPP)

- Taking this one step further, economists calculate the real GDP (or real GNI) at **purchasing power parity** (PPP).
- PPP refers to the exchange rate that enables residents of one country to purchase a common basket of goods and services in different countries. This removes the challenge of comparing GDP (or GNI) figures that are expressed in different currencies that do not reveal differences in purchasing power.
- PPP-adjusted exchange rates enable economists and policymakers to see if a currency is under- or overvalued. However, it is a rather arbitrary measure as only certain products are selected but the basket of goods and services is not necessarily representative of what the average local resident purchases in different countries.

■ Business cycle (AO2, AO4)

- The **business cycle** (or the **trade cycle**) is a model that describes the fluctuations in the level of economic activity in a country over time (see Figure 16.2).



■ **Figure 16.2** The business cycle

- The short-term fluctuations show the actual level of economic activity at a point in time. The long-term growth trend (or potential output) is shown by the trend from the actual data of economic activity.
- The various stages in the business cycle are:
 - **Peak** (or **boom**) – when economic activity is at its highest level, so unemployment is low, and business and consumer confidence levels are high.
 - **Recession** – when there is a fall in real GDP for two consecutive quarters, which is likely to cause business failures and job losses. It creates uncertainty for households and firms, so limits consumer and business confidence.
 - **Trough** (or **slump**) – when the economy reaches the bottom point of a recession, with consumption, investment and net exports all at a low point. This results in negative economic growth, business closures and mass unemployment across the economy.
 - **Recovery** – when real GDP starts to rise after the trough in the business cycle. Consumption, investment and net exports gradually rise, thereby creating job opportunities and increasing both consumer and business confidence.
 - **Expansion** – when the level of economic activity actually rises beyond its previous peak, leading to an increase in potential output caused by a continual rise in consumption, investment, government spending and net export earnings.
- Technically, **economic growth** occurs when real GDP increases for two consecutive quarters. Growth in economic activity leads to lower unemployment although also causes some inflation. Nevertheless, growth is generally regarded as desirable as it suggests the average person earns more and the economy is more prosperous.
- **Potential output** refers to the highest level of real GDP that can be sustained over the long term. It is indicated by the long-term trend line in the business cycle.
- In reality, major exogenous shocks can distort the growth trend line due to cases such as natural disasters, global financial crises or the outbreak of infectious diseases such as the coronavirus outbreak that began in 2019.
- **Appropriateness of using GDP or GNI statistics to measure economic well-being (AO3)**
 - Economists use GDP and/or GNI statistics for making comparisons of economic well-being over time, as well as making comparisons between countries.
 - National income statistics provide economists and policymakers with an indication of the standards of living in a country. This is because higher real GDP per capita is associated with higher standards of living for the average person as this determines the amount of goods and services that person is able to consume.
 - However, there are limitations in using national income statistics to measure standards of living and economic well-being:
 - GDP and GNI statistics do not reveal the distribution of income and wealth in the country. This applies whichever measure is used (nominal, real, per capita or PPP).
 - The statistics do not reveal differences in rates of direct and indirect taxes between countries.
 - Differences in the cost of living are ignored, even if the impacts of inflation are considered. For example, the cost of housing in London, Paris, New York City,

Singapore, Tokyo, Mumbai and Hong Kong is significantly higher than in most parts of the world.

- Exchange rate fluctuations can make international comparisons of GDP and GNI less meaningful over time.
- The extent of social welfare benefits varies between countries, but this is not shown in national income statistics (recall that transfer payments are ignored in the various measurements of economic activity).
- There also needs to be consideration of the composition of national output. For example, if armaments and national defence accounts for the most significant proportion of national expenditure, this is unlikely to raise the economic well-being for the average person in the country.
- Economic activities in the hidden or shadow economy are ignored. Variations in the size of the shadow economy (for goods and services that are not officially traded) make it less meaningful to compare national income statistics between countries.
- Economic growth often comes at the opportunity cost of greater inequalities in income and wealth and/or damage to the environment in terms of pollution, destruction of natural ecosystems and climate change – all of which are detrimental to human well-being.

■ Alternative measures of well-being (AO2)

Owing to the limitations of using GDP and GNI statistics to measure a country's social, ecological and economic well-being, alternative measures are needed. These measures include: (1) the OECD Better Life Index, (2) the Happiness Index, and (3) the Happy Planet Index.

■ The OECD Better Life Index (BLI)

- In May 2011, the Organisation for Economic Co-operation and Development (OECD) launched the **Better Life Index** (BLI) to compare well-being across countries.
- The BLI uses 11 measures identified by the OECD to be essential in terms of *material living conditions* (items 1–3) and *quality of life* (items 4–11):
 - 1 Housing – housing conditions and expenditure.
 - 2 Income – household disposable income and net financial wealth.
 - 3 Jobs – earnings, job security and unemployment.
 - 4 Community – quality of social support network.
 - 5 Education – quality of education.
 - 6 Environment – quality of the environment (environmental health).
 - 7 Governance – involvement in democracy.
 - 8 Health – quality of healthcare.
 - 9 Life satisfaction – level of happiness.
 - 10 Safety – assault and murder rates.
 - 11 Work–life balance – work hours versus leisure hours.
- The BLI enables policymakers to be more informed about the various factors that are deemed to shape our lives and overall human well-being.

- However, as the BLI does not rank these 11 indicators of well-being, making like-for-like comparisons between countries can be challenging.

■ The Happiness Index

- The **Happiness Index** was created in April 2012 by the United Nations Sustainable Development Solutions Network (SDSN), and is published in the annual World Happiness Report (WHR). The index considers how information technology, governance and social norms influence communities and their level of well-being.
- Compilation of the index requires the use of representative samples of respondents in a country, who are asked to rate their current lives using different criteria on a scale of 0 (least happy) to 10 (most happy).
- The survey uses 14 indicators of well-being: (1) business and economic, (2) citizen engagement, (3) communications and technology, (4) diversity (social issues), (5) education and families, (6) emotional well-being, (7) environment and energy, (8) food and shelter, (9) government and politics, (10) law and order (safety), (11) health, (12) religion and ethics, (13) transportation, and (14) work (employment).
- Economists and social scientists believe that happiness leads to greater productivity, prosperity and profits as well as peace, progress and purpose in life.
- One strength of the Happiness Index is that the index is updated to reflect changes in what contributes to well-being, given that happiness changes over time. However, this also means it can be difficult to make historical comparisons of well-being by using the Happiness Index.

■ The Happy Planet Index

- In 2006, the New Economics Foundation introduced the **Happy Planet Index** (HPI) as a measure of human well-being. The HPI is used to measure the extent to which individuals and countries are able to achieve long, happy and sustainable lives.
- It emphasizes the impact of economic activity on the environment by giving higher scores to countries with lower ecological footprints.
- The HPI is an important measure of human well-being as it considers both the current and future prosperity of individuals and societies. Hence, it emphasizes the importance of happy, healthy and sustainable lives without jeopardizing the planet.
- The index is calculated by using four categories or measures to determine happy lives:



- 1 **Well-being** – how residents feel about their own life overall, on a scale of 0 (worst) to 10 (best), based on representative research data conducted as part of the Gallup World Poll, representing over 98 per cent of the world's adult population.



- 2 **Life expectancy** – the average number of years a person is expected to live for in each country, based on data gathered from the United Nations.



- 3 **Inequality of outcomes** – a measure of the inequalities within a country in terms of how long citizens live and how happy they feel. This is based on data for life expectancy and well-being for each country.



- 4 **Ecological footprint** – a measure of the impact that the average person in the country has on the environment, based on data from the Global Footprint Network.

- Hence, the HPI is calculated as being equal to (Well-being × Life expectancy × Inequality) ÷ Ecological footprint.

$$\text{HPI} = \frac{\text{Well-being} \times \text{Life expectancy} \times \text{Inequality}}{\text{Ecological footprint}}$$

■ **Figure 16.3** The Happy Planet Index
Source: <https://happyplanetindex.org/about>

- Unlike national income statistics, data show that high-income countries underperform in the HPI rankings. Although these countries may succeed in terms of high real GDP per capita, other nations achieve higher HPI scores owing to their higher life expectancy, improved human well-being and smaller ecological footprints (such as carbon emissions and damage to the natural environment).
- Critics argue that the HPI ignores some major problems affecting people's human well-being and happiness across the world, such as abuse and violation of human rights in some of the countries that rank high in the HPI.

PAPER 1 EXAM PRACTICE QUESTION 16.1

With reference to the circular flow model, explain the equivalence of the income, output and expenditure approaches to national income accounting. [10 marks]

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 16.2

Calculate the value of nominal gross domestic product (GDP) from the information below: Consumption = \$185bn, Exports = \$66bn, Government spending = \$40bn, Imports = \$58bn, and Investment = \$60bn. [2 marks]

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 16.3

The figures below show the national income statistics for a particular country over the past year (all figures in \$ billion).

■ Consumption (C)	=	\$372
■ Government expenditure (G)	=	\$66
■ Gross domestic product (GDP)	=	\$477
■ Investment expenditure (I)	=	\$52

From the figures above, calculate the value of the country's net exports. [2 marks]

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 16.4

The figures below show last year's nominal GDP for a particular country (all figures in \$m).

■ Domestic exports of goods (X)	=	\$550
■ Domestic exports of services (X)	=	\$880
■ Government consumption expenditure (G)	=	\$480
■ Gross domestic fixed capital formation (I)	=	\$995
■ Imports of goods (M)	=	\$680
■ Imports of services (M)	=	\$500
■ Private consumer expenditure (C)	=	\$2,650

Calculate the value of the country's nominal gross domestic product (GDP). [2 marks]

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 16.5

Use the following data to calculate the value of a country's nominal gross national income (GNI): Consumption = \$235bn, Export earnings = \$68bn, Government spending = \$78bn, Import expenditures = \$102bn, Investment expenditure = \$110bn, Net income earned abroad = -\$32bn.

[2 marks]

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 16.6

Use the data below to calculate the real gross national income in 2021 and in 2022 (round answers to 2 decimal places) and explain your results.

[4 marks]

Year	Nominal GNI (\$bn)	GNI deflator
2021	835.50	1.0450
2022	877.28	1.1286

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 16.7

From the data below for Taiwan, calculate the percentage change in the country's gross domestic product (GDP) at constant prices per capita between 2020 and 2021 and comment on your findings.

[4 marks]

Year	GDP (\$ bn)	Population (million)
2020	526.861	23.59
2021	509.724	23.55

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 16.8

Year	Nominal GDP (\$bn)	GDP deflator
2020	228.0	106.0
2021	230.2	107.8
2022	232.4	109.8

- Calculate the real GDP in 2021. [2 marks]
- The average annual salary in 2022 was \$24,000. Calculate the average real income for the average worker. [2 marks]
- Explain why despite the nominal GDP increasing during the given time period, the real value of GDP fell. [3 marks]

PAPER 1 EXAM PRACTICE QUESTION 16.9

- Explain the impact that a cut in taxation and an increase in government spending might have on national income. [10 marks]
- Using real-world examples, discuss whether the real gross domestic product (GDP) per capita is a good indicator of a country's standard of living. [15 marks]

PAPER 1 EXAM PRACTICE QUESTION 16.10

Distinguish between the Better Life Index (BLI) and the Happy Planet Index (HPI) as alternative measures of well-being.

[10 marks]

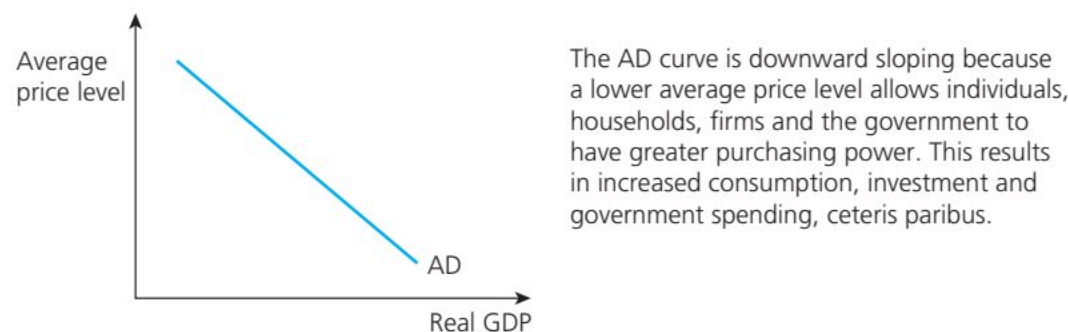
Chapter summary

- Economists use national income accounting as a measure of the level of economic activity in a country over time, which directly affects the average person's social and economic well-being.
- There are three ways to measure the level of economic activity: the value of national output (O), national income (Y), and national expenditure (E). Regardless of the method used, these approaches should give the same numerical result, that is, $O = Y = E$.
- The equivalence of the income, output and expenditure approaches to national income accounting can be illustrated using the circular flow model, which shows the interactions between economic decision makers, as well as leakages and injections.
- GDP and GNI both reflect the national output and income of an economy. The main difference is that GNI considers net factor incomes from abroad, that is, $GNI = GDP + \text{Net factor income from abroad}$.
- Nominal GDP (and nominal GNI) measures national output using *current prices*, that is, the actual value of GDP at the time of measurement, not adjusted for inflation.
- Real GDP (and real GNI) measures national output using *constant prices*, that is, the value of GDP is adjusted for inflation.
- A GDP deflator (or price deflator) is used to convert GDP (or GNI) at current prices to GDP (or GNI) at constant prices by removing the impact of inflation on the value of national output.
- Real GDP (or real GNI) per capita means expressing the real GDP (or real GNI) of a country in terms of its population size in order to determine the value of national income per person.
- Expressing GDP in terms of purchasing power parity (PPP) enables economists and policymakers to identify the exchange rate that enables residents to purchase a common basket of goods and services in different countries.
- The business cycle (or trade cycle) is a model that describes the fluctuations in economic activity in a country over time. These fluctuations occurs in phases of booms and slumps (or peaks and troughs), which create a long-term trend of potential growth.
- There are limitations to using GDP or GNI statistics to measure economic well-being. Comparisons over time and between countries are made more challenging due to factors such as differences in the cost of living, inequalities in the distribution of income and wealth, and the impact of economic activity on the natural environment.
- Alternative measures of well-being include: (1) OECD Better Life Index, (2) Happiness Index, and (3) Happy Planet Index.
 - The Better Life Index (BLI) is based on 11 topics identified by the OECD to be essential in terms of material living conditions and quality of life.
 - The Happiness Index accounts for how information technology, governance and social norms influence communities and their level of well-being.
 - The Happy Planet Index (HPI) is a measure of sustainable human well-being, that is, how individuals and countries are able to achieve long, happy and sustainable lives by considering measures of well-being, life expectancy, inequality and ecological footprints.

Variations in economic activity – aggregate demand and aggregate supply

■ Aggregate demand (AO2, AO4)

- In macroeconomics, **aggregate demand** (AD) refers to the value of total demand for all goods and services in the economy, per time period. It represents the planned spending on domestically produced goods and services at different average price levels.
- The AD curve shows the planned level of spending on domestic output of goods and services at different average price levels for a given period of time.
- The AD curve has a negative slope, that is, it is downward sloping (see Figure 17.1). This is because when the general level of prices is high, the level of aggregate demand tends to be low.



■ **Figure 17.1** The aggregate demand curve

TOP TIP!

Students often use microeconomic labels for their macroeconomics diagrams ('Price' on the y-axis and 'Quantity' on the x-axis). Make sure you pay attention to detail and use the correct labels when constructing AD–AS diagrams: use 'average price level' (or 'general price level') on the y-axis and 'Real GDP' (or 'National output') on the x-axis.

■ Components of aggregate demand (AO2)

- The components of aggregate demand are: consumption expenditure (C), investment expenditure (I), government spending (G), exports earnings (X) and import expenditure (M). Therefore, the formula for calculating aggregate demand is $AD = C + I + G + (X - M)$.
- **Consumption** (C) is the total spending on domestically produced goods and services from households, per time period. It is the single largest component of AD.
- **Investment** (I) is the expenditure of firms on capital goods in order to increase their capital stock and productive capacity, such as the purchase of machinery, tools, capital equipment, commercial vehicles and industrial buildings (offices and factories).

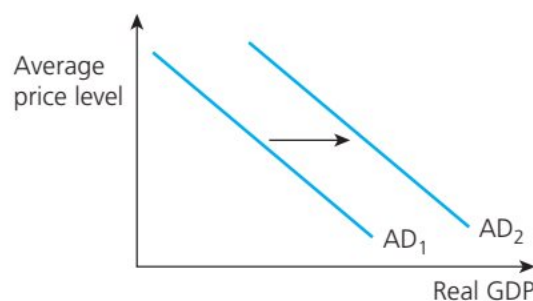
- **Government spending (G)** is the total expenditure on goods and services by the public sector, such as government expenditure on education, healthcare, national security and social welfare schemes.
- **Net exports (X – M)** measures the difference between the value of the country's export earnings and its import expenditure in the year.
 - *Exports* are the goods and/or services produced in one country and sold to customers located in other countries.
 - *Imports* are the goods and services produced overseas but purchased by domestic customers.

TOP TIP!

Gross domestic product (GDP) is often confused with aggregate demand (AD). While they are similar concepts, GDP refers to the value of actual expenditure in the economy over the year whereas AD refers to the planned (or the expected) expenditure for a given year.

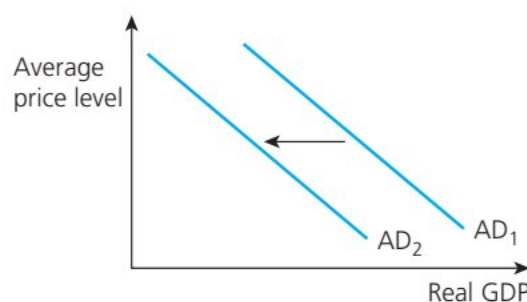
■ Determinants of AD components (AO2) and shifts of the AD curve caused by changes in the determinants (AO2, AO4)

The components of aggregate demand are affected by different but interrelated factors. Any factor that causes a change in a component of aggregate demand ($AD = C + I + G + X - M$) will cause a shift in the AD curve, *ceteris paribus*.



Any favourable factor affecting the level of aggregate demand will shift the AD curve out to the right from AD_1 to AD_2 , such as an increase in the level of consumer confidence in the economy. The shift will increase national output (real GDP) at all average price levels, *ceteris paribus*.

■ **Figure 17.2** Rightwards shift of the aggregate demand curve



Any detrimental factor affecting the level of aggregate demand will shift the AD curve to the left from AD_1 to AD_2 , such as an increase in interest rates, which makes the cost of borrowing less affordable. The inwards shift of AD will reduce national output (real GDP) at all average price levels, *ceteris paribus*.

■ **Figure 17.3** Leftwards shift of the aggregate demand curve

■ Consumption (C)

Factors that cause a change in consumption include: (1) consumer confidence, (2) interest rates, (3) wealth, (4) income taxes, (5) the level of household indebtedness, and (6) expectations of the future price level.

- **Consumer confidence** – The higher the level of consumer confidence in the economy, the greater the level of consumption will be, *ceteris paribus*. Consumer confidence is low during a recession and high during a boom.

TOP TIP!

The six determinants of consumption expenditure can be remembered by the acronym **TWICED**: (1) **T**axes on income, (2) **W**ealth, (3) **I**nterest rates, (4) **C**onsumer confidence, (5) **E**xpectations of the future price level, and (6) **D**ebts of households.

- **Interest rates** – An increase in interest rates will tend to reduce the level of consumption as households will find it less affordable to borrow money to finance their expenditure. Furthermore, households with existing loans have higher repayments to make when interest rates increase, so have less income at their discretion for consumption. Higher interest rates can also create an incentive for some people to save more money.
- **Wealth** – The wealthier households are, the more they tend to consume. Hence, an increase in the wealth of the average household in the economy will shift the AD curve to the right, *ceteris paribus*.
- **Income taxes** – Higher income taxes will reduce the disposable income that households have for consumption, *ceteris paribus*. By contrast, a cut in income tax rates will stimulate consumption expenditure and shift the AD curve outwards.
- **Level of household indebtedness** – A lower level of household indebtedness (money owed by individuals to financiers) reduces the amount of debt interest owed by households. This will tend to shift the AD curve to the right. Household indebtedness can be lowered by a cut in interest rates.
- **Expectations of the future price level** – If households expect the average price level (or the general price level) to increase in the near future, they will tend to increase consumption today, especially the purchase of durable goods (such as furniture or home appliances). This will tend to shift the AD curve outwards to the right.

■ Investment (I)

Factors that cause a change in investment expenditure in the economy include: (1) interest rates, (2) business confidence, (3) technology, (4) business taxes, and (5) the level of corporate indebtedness.

- **Interest rates** – Higher interest rates make it more expensive for firms to borrow money to finance their growth, so investment expenditure will tend to fall. Firms with existing loans will also face larger debt repayments if interest rates increase due to higher debt interest. Hence, higher interest rates will shift the AD curve to the left, *ceteris paribus*. The opposite applies if interest rates are cut.
- **Business confidence** – The higher the level of business confidence in the economy, the greater investment expenditure tends to be. This would shift the AD curve outwards to the right. By contrast, low business confidence (perhaps due to a global recession) will reduce incentives to cut investment spending.
- **Technology** – Advances in technology bring productivity gains and cost savings in the long run. Hence, this will tend to boost the level of investment expenditure and increase aggregate demand, *ceteris paribus*.
- **Business taxes** – The lower the rate of business taxes (such as corporation tax imposed on profits), the more attractive investment becomes as firms are more likely to be able to earn a return on their investment. Hence, lowering business taxes will tend to shift the AD curve to the right, and vice versa.
- **Level of corporate indebtedness** – The higher the amount of outstanding debts that firms have, the less money they have available for investment expenditure. Indebtedness tends to rise when interest rates are increased, which shifts the AD curve to the left, *ceteris paribus*.

■ Government spending (G)

Factors that cause a change in government expenditure in the economy include: (1) political priorities, and (2) economic priorities.

- **Political priorities** – Government spending is dependent on political priorities, such as an increase in expenditure on social welfare during periods of high unemployment. An injection of government funds into the economy will tend to increase aggregate demand.
- **Economic priorities** – The global financial crisis of 2008 and the coronavirus outbreak which began in 2019 required government intervention and immense amounts of government spending to support the global economy and reduce the social and economic damage due to the high rates of unemployment.

■ Net exports (X – M)

Factors that cause a change in net export expenditure include: (1) income of trading partners, (2) exchange rates, and (3) trade policies.

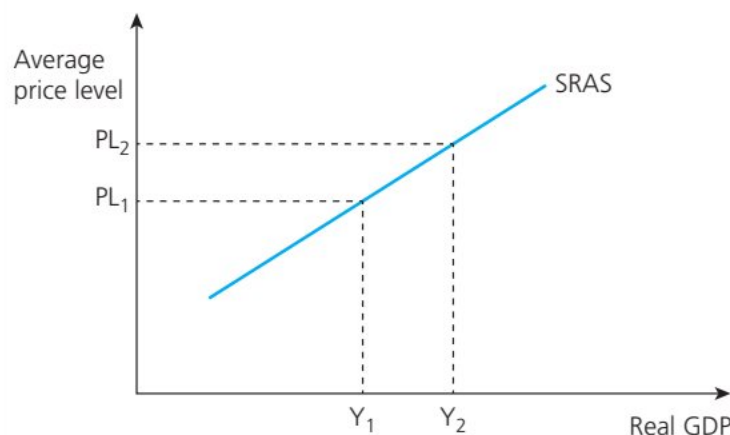
- **Income of trading partners** – A fall in the national income of trading partners leads to fewer exports and therefore a decline in aggregate demand, *ceteris paribus*. The opposite is true if there is a rise in the national income of trading countries.
- **Exchange rates** – A higher exchange rate tends to increase the demand for imports as the local currency can buy more units of foreign currencies, so imported products become relatively more affordable. Hence, aggregate demand falls as import expenditure represents a leakage from the circular flow. The opposite applies if exchange rates fall.
- **Trade policies** – Imposing more trade barriers, such as tariffs and/or quotas, will cause the price of imports to rise, so reduces the demand for foreign goods and services and makes exports more appealing. Hence, the AD curve shifts outwards (since $X > M$), *ceteris paribus*. By contrast, the AD curve will shift to the left if import expenditure exceeds export earnings ($M > X$), *ceteris paribus*.

■ Short-run aggregate supply (SRAS) curve and determinants of the SRAS curve (AO2, AO4)

- **Aggregate supply (AS)** is the planned level of output of goods and services that firms within an economy are willing and able to supply at different average price levels. It is therefore a measure of the economy's potential output (or total supply).
- The **short run aggregate supply (SRAS)** curve shows the total planned national output from domestic firms at different average price levels. In the short run, both wage rates and the state of technology are assumed to be fixed.

TOP TIP!

The slope of the SRAS curve depends on the extent to which there is spare capacity in the economy. The flatter the SRAS curve, the greater that degree of spare capacity (unused and underutilized resources).



The SRAS curve is upward sloping because higher average prices entice more firms in the economy to raise their output level. In the short run, it is assumed that capital is fixed, so firms can alter only variable factors of production, such as labour, to raise output. The SRAS curve is therefore relatively price elastic in the short run as firms can raise output by getting employees to work overtime.

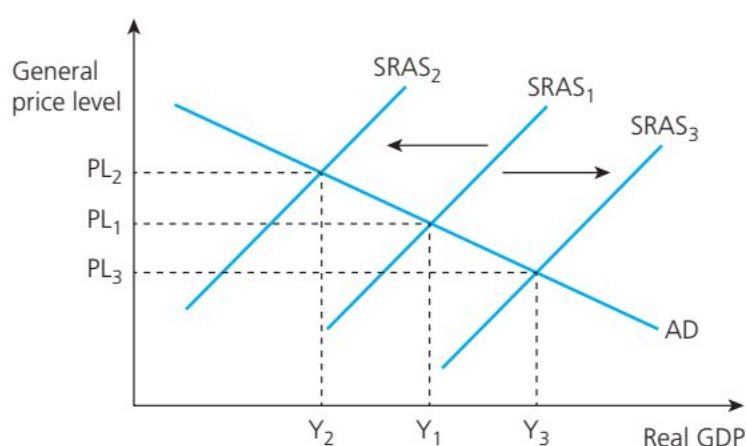
■ Figure 17.4 The SRAS curve

The main determinants of the SRAS curve are: (1) costs of factors of production, and (2) indirect taxes.

- **Costs of factors of production** – A change in costs will cause a shift in the SRAS curve. Examples of variables that affect the costs of factors of production can be remembered by using the acronym **LITRE**: (1) **L**abour costs, such as wages and salaries, (2) **I**nterest rates, (3) **T**ransportation costs, (4) **R**aw material costs, and (5) **E**xchange rate (for firms engaged in international trade).
- **Indirect taxes** – Government levies or charges such as environmental taxes and sales taxes are imposed on producers and suppliers. This adds to their costs of production, even if the producer can pass on some of the indirect taxes to consumers in the form of higher prices. Indirect taxes reduce the profitability of firms, so tend to reduce AS.

■ Shifts of the SRAS curve (AO2, AO4)

- A change in any of the main determinants of short run aggregate supply will cause the SRAS curve to shift.
- Higher costs of production and/or indirect taxes will shift the SRAS curve to the left, *ceteris paribus*. The opposite applies if there is a fall in costs and/or indirect taxes.
- In the short run, adverse changes in non-price factors that affect AS will shift the SRAS curve to the left, from $SRAS_1$ to $SRAS_2$. This leads to higher average price levels in the economy, from PL_1 to PL_2 , and a contraction in aggregate demand from Y_1 to Y_2 .
- By contrast, favourable changes in non-price factors that affect AS in the short run will shift the SRAS curve to the right, from $SRAS_1$ to $SRAS_3$. This leads to lower average prices in the economy, from PL_1 to PL_3 , and subsequently an expansion in AD from Y_1 to Y_3 .



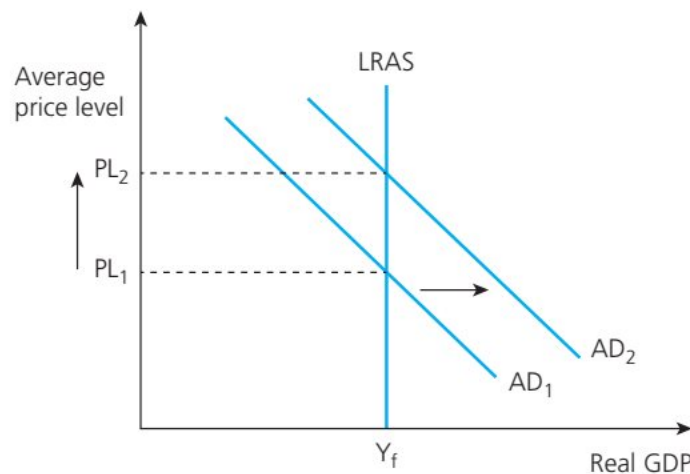
■ **Figure 17.5** Shifts in the SRAS curve

■ Alternative views of aggregate supply (AS) (AO2, AO4)

While economists agree on the shape of the short run aggregate supply (SRAS) curve, there is disagreement about the long run aggregate supply (LRAS). The alternative views of AS can be categorized as: (1) the monetarist/new classical view of the LRAS curve, and (2) the Keynesian view of the AS curve.

■ The monetarist/new classical view

- Monetarists (or new classical economists) believe that the LRAS curve is vertical at the full employment level of output in the long run (see Figure 17.6).
- Hence, AS is independent of the average price level in the long run, that is, it is perfectly price inelastic at the full employment level of output (Y_f).



The economy cannot produce beyond its productive capacity of Y_f . Monetarists argue that long run equilibrium exists where AD intersects the LRAS curve. Any attempt to increase aggregate demand beyond the capacity of the economy (Y_f), from AD_1 to AD_2 , will only be inflationary, with the average price level increasing from PL_1 to PL_2 . Hence, potential output is based on the economy's quantity and quality factors of production, and the price level does not affect the LRAS.

■ **Figure 17.6** The LRAS curve (monetarist/new classical view)

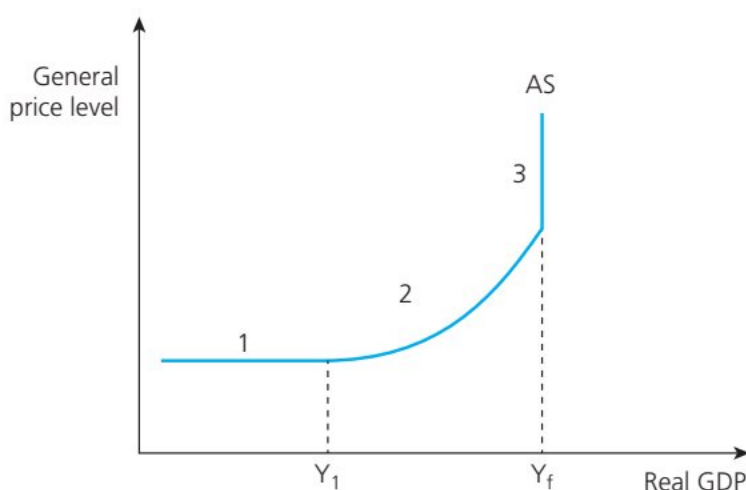
- LRAS is independent of the price level because this level of national output represents the maximum real GDP that the economy can produce. Hence, the LRAS curve is vertical and is dependent on non-price variables such as the state of technology or the quantity and quality of factors of production.
- The potential output of the economy (Y_f) is determined by the quantity and quality of its factors of production, independent of the average price level.

TOP TIP!

When referring to the Keynesian AS curve, do not use the term 'long run aggregate supply' (LRAS) but 'Keynesian aggregate supply'.

■ The Keynesian view of the AS curve

- Keynesian economists believe that the AS curve has three distinct sections (see Figure 17.7), due to the varying degrees of spare capacity in the economy.
- They argue that the economy does not necessarily reach the full employment level of output (Y_f), even in the long run. For example, Spain was in recession from 2008 to 2014 due to the global financial crisis, while Japan was in a prolonged recession from 1995 to 2007 during which time its nominal GDP fell by over 18 per cent.



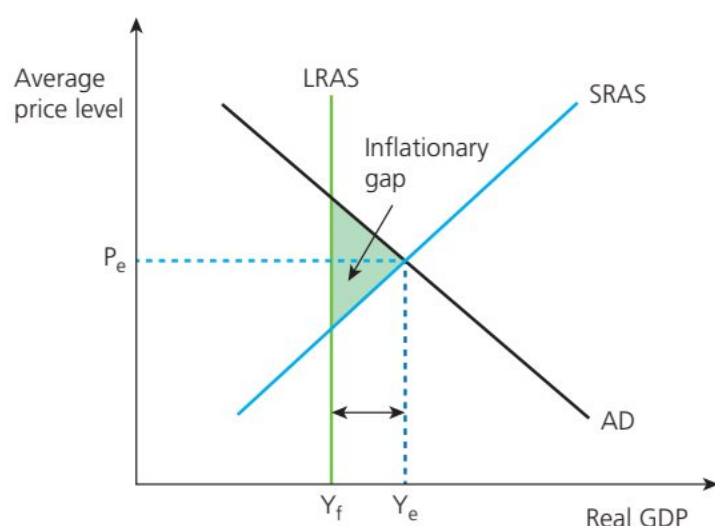
- In section 1 of the Keynesian AS curve, aggregate supply is perfectly price elastic (horizontal) as there is plenty of spare capacity (unemployed resources). Therefore, any increase in AD has no direct impact on the general price level.
- In section 2, where the curve slopes upwards between Y_1 and Y_f so AS is relatively price elastic. There is pressure on scarce resources as the economy grows. Subsequently, there is an increase in the general price level.

■ **Figure 17.7** The Keynesian AS curve (Keynesian view)

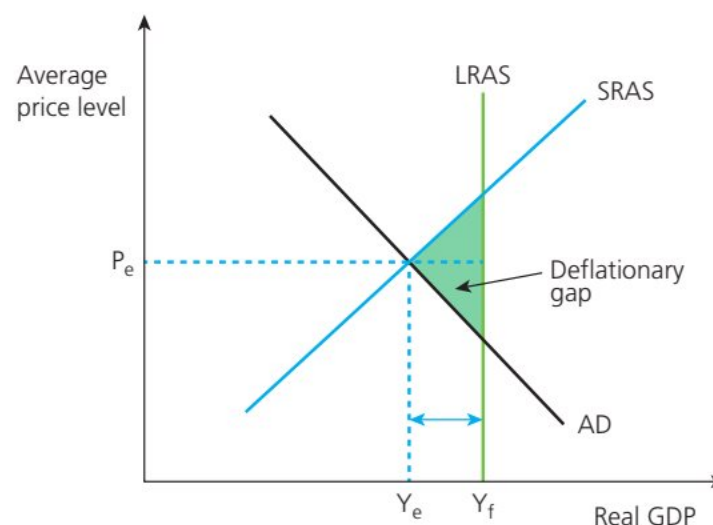
- In section 3, aggregate supply is perfectly price inelastic (vertical) as there is no longer any spare capacity in the economy. As all factors of production are fully employed, any increases in AD beyond Y_f are purely inflationary.

■ Inflationary and deflationary/recessionary gaps

- Monetarists and Keynesians differ in their approach to tackling inflationary and deflationary gaps.
- An **inflationary gap** (or **positive output gap**) exists if actual real GDP exceeds the full employment level of output ($Y_e > Y_f$). The economy opts to maintain full employment, despite higher levels of aggregate demand in the economy. This leads to higher average price levels (inflation).



■ Figure 17.8 The inflationary gap



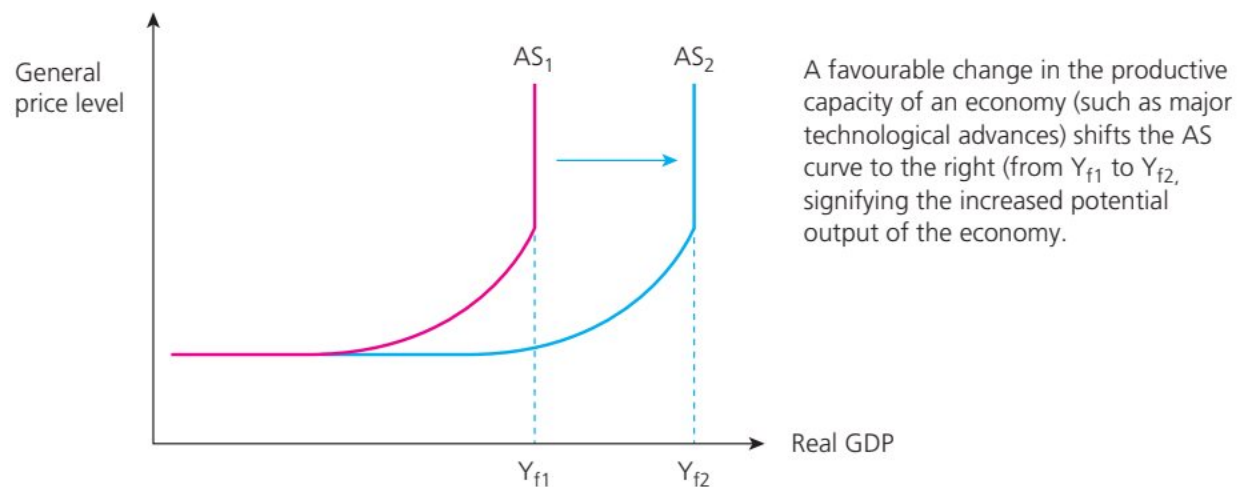
■ Figure 17.9 The deflationary gap

- By contrast, a **deflationary gap** (or **recessionary gap** or **negative output gap**) exists when the equilibrium real national output (Y_e) is below the full employment level of output (Y_f). Hence, actual growth is below potential growth (see Figure 17.9).
- Deflationary gaps are caused by lower levels of aggregate demand (AD). This might be caused by any combination of a fall in: (1) consumer spending, (2) investment expenditure, and (3) net export earnings.

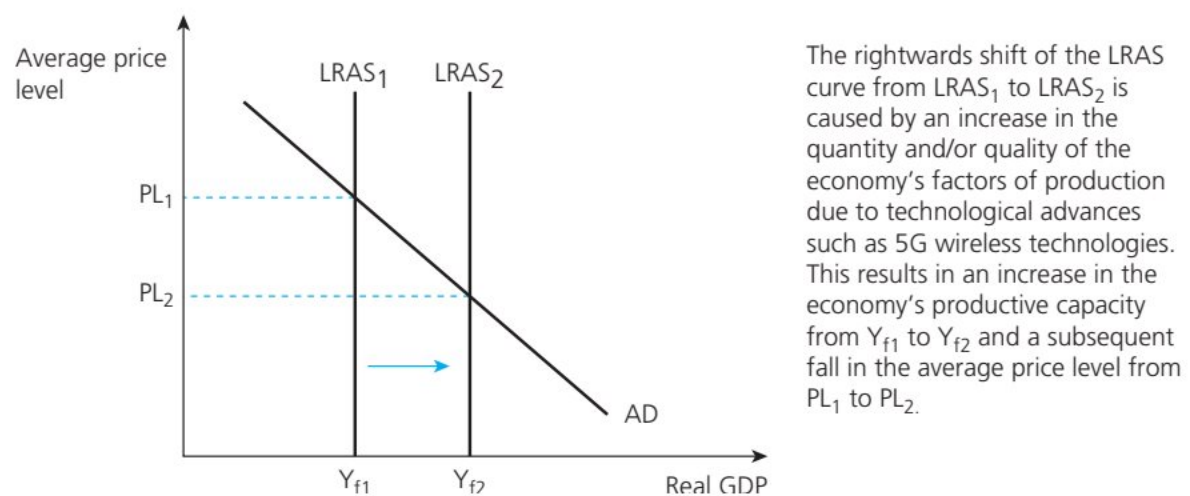
■ Shifts of the AS curve over the long run (AO2, AO4)

- Irrespective of which version of the AS curve is used, economists agree that aggregate supply increases over the long run (using the monetarist/new classical LRAS model) or over the long term (using the Keynesian AS model), as illustrated by the shift in the AS curves in Figures 17.10 and 17.11.
- The LRAS or Keynesian AS curves can shift outwards to the right under any combination of the following interrelated factors: (1) changes in the quantity and/or quality of factors of production, (2) improvements in technology, (3) increases in efficiency, and (4) changes in institutions.
 - **Changes in the economy's quantity and/or quality of factors of production** – The more resources that a country has and the better these are, the greater the LRAS. Resources can be increased by discovering new supplies, the reclamation of land, or by a larger and more skilled workforce.
 - **Improvements in technology** – Higher productivity of factor resources is brought about by improvements in technology, thereby increasing LRAS. Advances in technology create growth opportunities across all industries.

- **Increases in efficiency** – Efficiency gains require all factors of production to be put to their best use, without any waste in the production process. Investments in technology and research and development (R&D) can lead to increases in efficiency.
- **Changes in institutions** – The institutional structure of the economy, such as its legal and financial systems, can facilitate an increase in LRAS. For example, improved education and training of the workforce and better healthcare provision help to increase the economy's potential output in the long term.



■ **Figure 17.10** A shift in the Keynesian AS curve



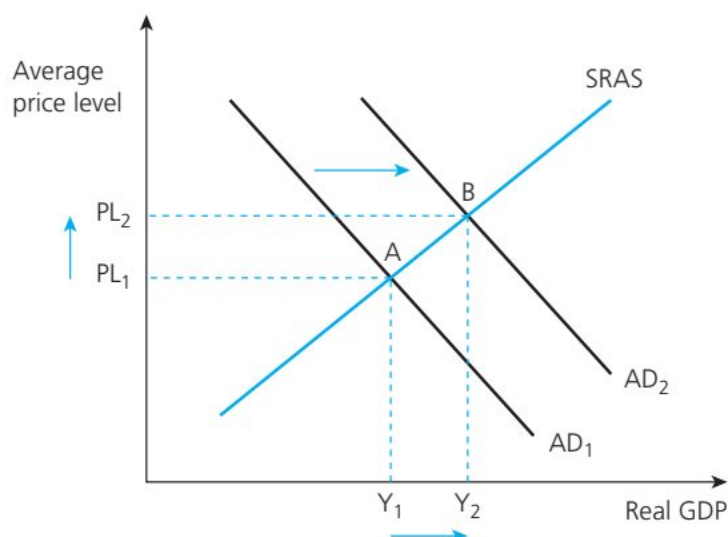
■ **Figure 17.11** A shift in the LRAS curve (monetarist/new classical model)

■ Macroeconomic equilibrium (AO2, AO4)

Macroeconomic equilibrium exists when aggregate demand is equal to aggregate supply in the economy, that is, $AD = AS$, although the position differs in the short run and long run.

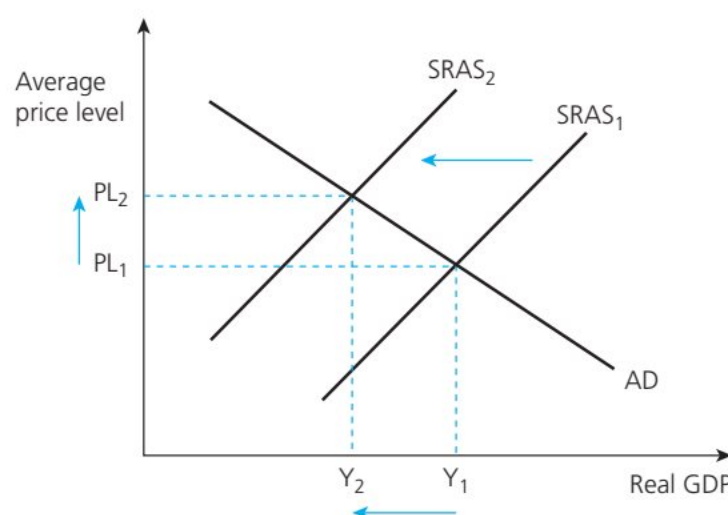
■ Short run macroeconomic equilibrium

- Short run macroeconomic equilibrium occurs when $SRAS = AD$. This equilibrium position determines the average price level and level of output (real GDP).
- Any change in AD and/or SRAS will cause a subsequent change in macroeconomic equilibrium (see Figures 17.12 and 17.13).



Lower income taxes will shift the AD curve from AD_1 to AD_2 , ceteris paribus. The economy moves from equilibrium position A to B, where $AD_2 = SRAS$. Higher aggregate demand increases both real GDP and the average price level (from Y_1 to Y_2 and PL_1 to PL_2 respectively). The opposite applies if AD falls, perhaps due to a recession.

■ **Figure 17.12** Short run equilibrium (a shift in the AD curve)



An increase in costs of production and/or indirect taxes causes SRAS to decline, shown by the leftwards shift of the SRAS curve from $SRAS_1$ to $SRAS_2$. This reduces real GDP from Y_1 to Y_2 and increases the average price level from PL_1 to PL_2 . The opposite is true if SRAS increases.

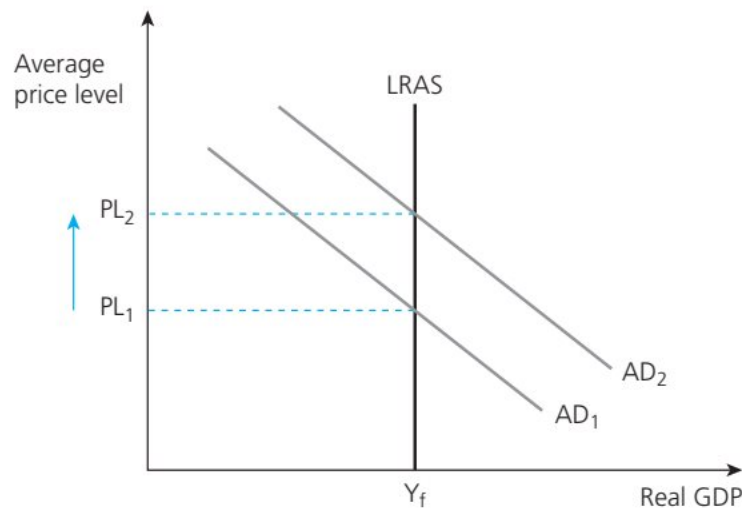
■ **Figure 17.13** Short run equilibrium (a shift in the SRAS curve)

TOP TIP!

When analysing changes in aggregate demand and aggregate supply, consider the concept of price elasticity of demand (PED) and price elasticity of supply (PES). For example, an increase in AD will have a greater impact on the general price level if AS is price inelastic.

■ Equilibrium in the monetarist/new classical model

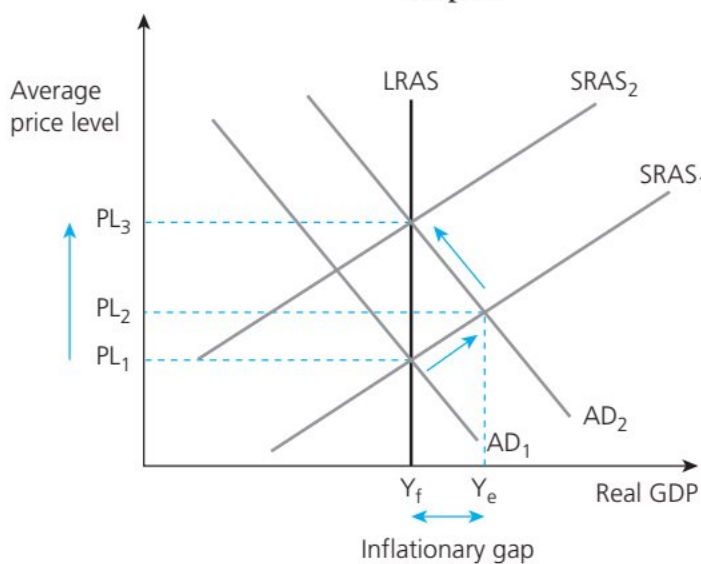
- In the monetarist/new classical model of macroeconomic equilibrium, long run equilibrium occurs at the full employment level of output (potential output).
- The market forces of AD and AS restore the economy to full employment equilibrium in the long run, without the need for government intervention. **Full employment** occurs when those who are willing and able to work have or can find a job, so the economy operates at full capacity.
- Any unemployment at the full employment equilibrium is called **natural unemployment**. The natural rate of unemployment (NRU) consists of those in-between jobs and those without a job due to seasonal variations in aggregate demand.



The new classical model assumes the LRAS curve is vertical at the full employment level of output (Y_f). It is not possible to increase real GDP as all resources are fully utilized. Any further attempts to increase AD beyond the full employment level of national output (for example, from AD_1 to AD_2) will simply be inflationary, causing the average price level to increase from PL_1 to PL_2 .

■ **Figure 17.14** Long run equilibrium (monetarist/new classical model)

- The model assumes that wages and prices are flexible enough to maintain the economy at Y_f in the long run. For example, in the case of an inflationary gap (see Figure 17.15), macroeconomic equilibrium is restored via the market mechanism in the following way:
 - The economy initially operates at the full employment level of national output (Y_f) with the average price level at PL_1 .
 - An increase in aggregate demand from AD_1 to AD_2 increases the average price level from PL_1 to PL_2 , causing AS to expand along the $SRAS_1$ curve, thereby creating an inflationary gap ($Y_e > Y_f$).
 - This temporarily increases national output beyond its natural capacity, so raises production costs such as wages.
 - With higher costs of production, the SRAS curve shifts from $SRAS_1$ to $SRAS_2$, causing the average price level to increase from PL_2 to PL_3 but restoring the economy back to Y_f that is, the long run macroeconomic equilibrium national output.



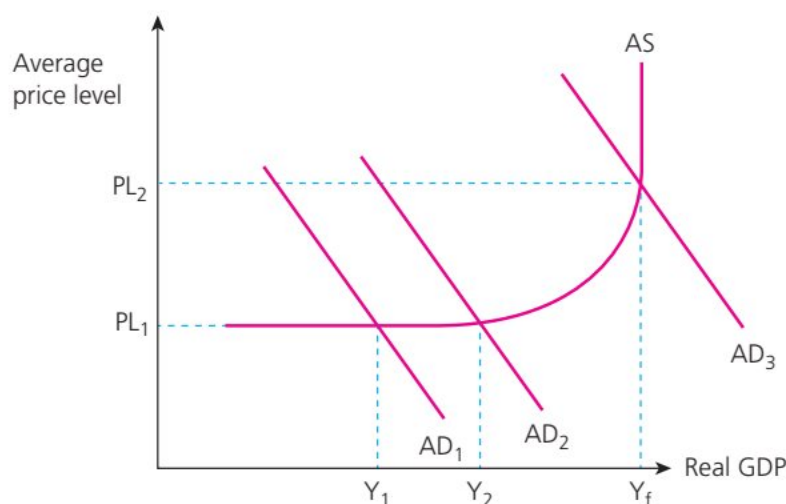
■ **Figure 17.15** Restoring an inflationary gap (monetarist model)

- Hence, new classical economists believe that demand-side policies are ineffective for achieving economic growth in the long run.
- Instead, they advocate the use of supply-side policies to shift the LRAS outwards, thereby simultaneously achieving economic growth, lower unemployment and a fall in the average price level in the long run.

■ Equilibrium in the Keynesian model

- Keynesians do not believe that the economy can always maintain macroeconomic equilibrium at the full employment level of output. They argue that the economy can remain in a deflationary gap (or recessionary gap) for a prolonged period of time.
- For example, high unemployment in the economy during a global financial crisis or an extended recession caused by the outbreak of an infectious virus can create negative multiplier effects which contract real GDP even further.

- Instead, they argue that the economy can be in macroeconomic equilibrium at any of the three sections of the Keynesian AS curve in both the short run and long term.
- Hence, Keynesians argue that government intervention is needed to prevent a prolonged negative output gap.



■ **Figure 17.16** Equilibrium in the Keynesian model

- With reference to Figure 17.16:
 - There is spare capacity (unused resources) along the price elastic section of the Keynesian AS curve. An increase in aggregate demand from AD_1 to AD_2 increases real GDP from Y_1 to Y_2 without putting any pressure on the general price level which remains at PL_1 .
 - Along the upward sloping section of the Keynesian AS curve, further increases in AD between AD_2 and AD_3 cause the average price level to rise from PL_1 to PL_2 as national output increases from Y_1 to Y_f .
- If the economy reaches the full employment level of national output (Y_f), firms compete for highly limited resources as the economy is at full capacity. This causes the general price level to rise beyond PL_2 , but without the economy being able to produce any more output beyond its productive capacity.
- Unlike monetarists, Keynesians argue that labour markets do not necessarily clear in order to restore macroeconomic equilibrium. For example, existing employment contracts can prevent wages and salaries from falling despite the potential to close a deflationary gap. Workers are usually inflexible in accepting nominal pay cuts, especially with the backing of well-established trade unions.
- Keynesian economists do not believe that the macroeconomy is always able to self-correct, especially from severe recessions. Without government intervention, the economy can remain stuck in a deflationary gap because of mass unemployment.

■ Assumptions and implications of the monetarist/new classical and Keynesian models (AO3)

- The key assumption in the Keynesian model is wage inflexibility, which can cause persistent and prolonged recessionary gaps. Keynes argued that wages are 'sticky' downwards, that is, wages are slow to change and get stuck above the equilibrium because workers resist nominal wage cuts. This prevents the economy from reaching macroeconomic equilibrium.
- Hence, Keynesians argue there is a need for government intervention to restore long run macroeconomic equilibrium through the use of monetary policy (such as lower interest rates) and/or expansionary fiscal policy (such as reducing income taxes).
- By contrast, the new classical (monetarist) model assumes any unemployment at the full employment equilibrium to be natural unemployment in the long run.
- Monetarists (new classical economists) assume that long run equilibrium occurs at the potential or full employment level of real national output. Diagrammatically, this is shown by the intersection of AD and the LRAS curve. Any fall in real national output below the macroeconomic equilibrium is assumed to be only temporary as the economy would return to equilibrium of its own accord as market wage rates fall and labour flexibility helps to correct the economy of any unemployment.

- Monetarists argue that demand-side policies are ineffective in the long run and there is no need for government intervention. They advocate the use of supply-side policies (designed to improve productivity) to shift the LRAS outwards to achieve growth in the long run.

TOP TIP!

Understanding the contrasting perspectives of macroeconomic equilibrium using the monetarist/new classical model and the Keynesian model will be extremely useful for HL students as a framework for answering the policy paper question in Paper 3.

PAPER 1 EXAM PRACTICE QUESTION 17.1

Distinguish between a shift of and a movement along the short run aggregate supply (SRAC) curve.

[10 marks]

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 17.2

Using an appropriate diagram, explain the impact of a reduction in indirect taxes on an economy's short run aggregate supply.

[4 marks]

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 17.3

a Define the term *aggregate demand*.

[2 marks]

b With the use of an appropriate AD–AS diagram, explain the impact on the economy following an increase in investment expenditure.

[4 marks]

PAPER 1 EXAM PRACTICE QUESTION 17.4

Explain how a recession impacts the short run macroeconomic equilibrium position of an economy.

[10 marks]

PAPER 2 EXAM PRACTICE QUESTION 17.5

With the aid of an aggregate demand and aggregate supply diagram, explain what is likely to happen following a temporary reduction in both income taxes and corporation taxes.

[4 marks]

Chapter summary

- Aggregate demand (AD) is the value of planned spending on all domestically produced goods and services in the economy, per time period.
- There is an inverse correlation between AD and the general (average) price level. Hence, the AD curve is downward sloping.
- The components of aggregate demand are consumption, investment, government spending and net exports (total exports minus total imports). Hence, $AD = C + I + G + (X - M)$.
- A change in any of the components of AD will cause a shift in the AD curve, *ceteris paribus*.
- Aggregate supply (AS) is the total value of planned output of goods and services that firms within an economy are willing and able to provide at different average price levels, per time period.

- The short run aggregate supply (SRAS) curve shows the total planned national output at different average price levels, *ceteris paribus*.
- A favourable change in non-price factors that affect AS (such as lower production costs or a cut in indirect taxes) will shift the SRAS curve.
- A deflationary gap (or negative output gap) exists when an economy's real GDP is below the potential output at the full employment level of national income. An inflationary gap (or positive output gap) exists when an economy's actual real GDP exceeds its potential output at the full employment level of national output.
- Keynesians and monetarists/new classical economists differ in their views about the shape of the LRAS curve.
- The monetarist/new classical view is that LRAS is vertical at the full employment level of national output as the economy operates at its full capacity. It is not possible to increase production beyond the economy's potential output in response to growing AD.
- In the Keynesian model, it is assumed that there is wage inflexibility, which causes persistent recessionary gaps and prevents the economy from reaching macroeconomic equilibrium.
- Macroeconomic equilibrium exists when aggregate demand is equal to aggregate supply, that is, $AD = AS$.
- Monetarists (or new classical economists) suggest that any short run equilibrium (below the full employment level of real national output) is only temporary. Adjustments through the market forces of AD and AS will restore the economy to full employment equilibrium in the long run. Changes in the quantity and/or quality of factors of production (such as technological progress and innovations) result in shifts of the LRAS curve.

18

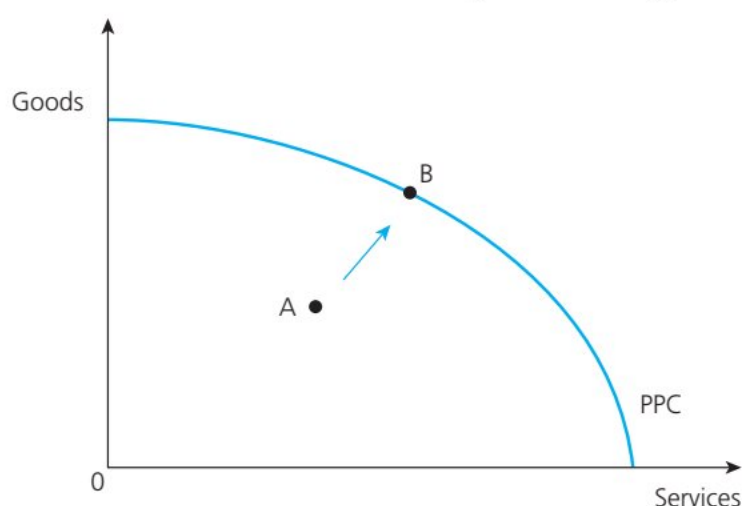
Macroeconomic objectives – economic growth

■ Economic growth (AO2, AO4)

- **Economic growth** refers to an increase in a country's real gross domestic product (real GDP) over time. It is usually expressed in terms of the annual percentage change in the value of the country's real GDP.
- GDP measures the monetary value of goods and services produced within a country for a given period of time, usually one year. **Real GDP** is the value of an economy's national output that has been adjusted for inflation in order to reflect the true value of goods and services produced during a given year.
- By contrast, **negative economic growth** occurs when the level of economic activity declines, that is, there is a fall in real GDP. This is associated with an economic recession in the business cycle.
- In general terms, economic growth occurs when there is an increase in the quantity and/or quality of the economy's factors of production, such as an improvement in labour productivity or advancements in the state of technology.
- Economists believe that sustained economic growth is an important macroeconomic objective because it is the most practical way for the majority of people in a country to enjoy a higher standard of living.

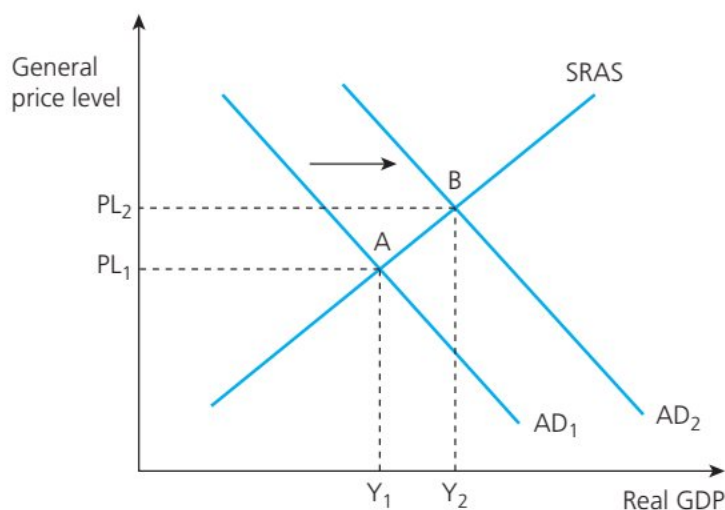
■ Short-term growth

- Recall that an economy's **production possibility curve** (PPC) shows the maximum possible combinations of output for two different products when all resources are employed efficiently.
- **Actual growth** occurs in the short term when an economy operates below its full employment level of national income but moves towards its potential level of GDP by using more of its resources more efficiently (shown by the movement from point A to point B in Figure 18.1).

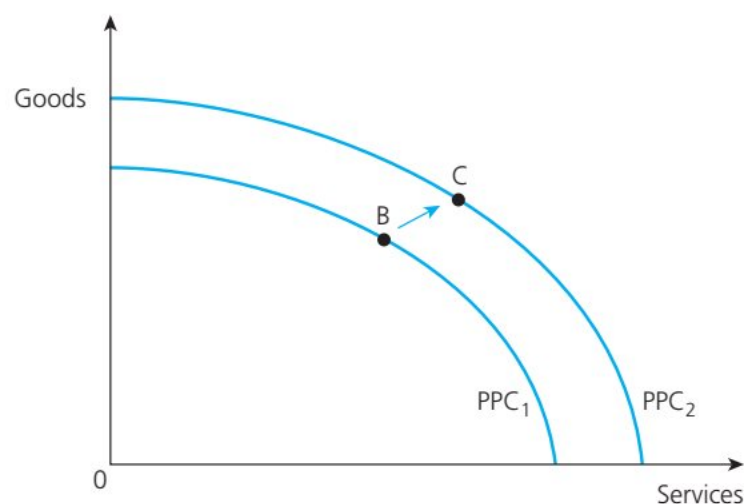


■ **Figure 18.1** Actual growth in the PPC model

- Alternatively, actual growth can be illustrated using an AD–AS diagram (see Figure 18.2). The higher the level of aggregate demand in the economy, the larger the country's GDP will tend to be.
- The short run equilibrium is initially at point A, where $AD_1 = SRAS$ (the short run aggregate supply) and real GDP at Y_1 . An increase in aggregate demand from AD_1 to AD_2 results in real GDP rising from Y_1 to Y_2 , and causes an increase in the general price level from PL_1 to PL_2 . The new equilibrium is therefore at point B, where $AD_2 = SRAS$.



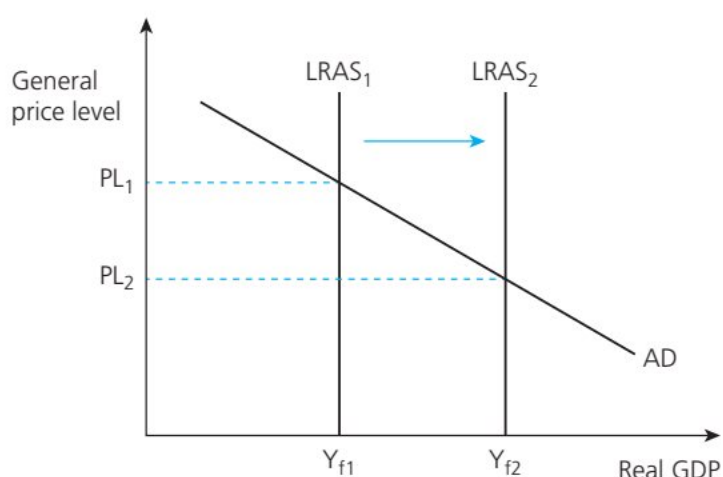
■ Figure 18.2 Actual growth in the AD-AS model



■ Figure 18.3 Long-term growth in the PPC model

■ Long-term growth

- **Potential output** refers to the possible level of real GDP of an economy, as shown on its production possibility curve, if all resources are used efficiently. It can also be illustrated at the full employment level of national output on an AD-AS diagram.
- **Long-term growth** occurs when there is an increase in an economy's potential output. It is associated with an increase in the quantity and/or quality of factors of production in the long run.
- In Figure 18.3, long-term growth is demonstrated by an outwards shift of the economy's PPC from PPC_1 to PPC_2 or from point B to point C. This can be caused by improvements in the quantity and/or quality of factors of production.
- Alternatively, long-term growth can be shown by an AD-AS diagram. An increase in potential growth is shown by an outwards shift of the long run aggregate supply (LRAS curve), as shown in Figure 18.4. For example, an increase in the labour supply or improvements in the state of technology will shift the LRAS curve outwards, ceteris paribus. This causes real GDP to increase from Y_{f1} to Y_{f2} , and the average price level to fall from PL_1 to PL_2 , which helps to reduce the general cost of living.



■ Figure 18.4 Long-term growth in the AD-AS model

■ Measurement of economic growth (AO2, AO4)

- Economic growth is usually measured by calculating changes in GDP over time. It can be expressed in nominal and real terms. **Nominal economic growth** is the annual rate of change in monetary terms. **Real economic growth** adjusts nominal economic growth rates to take account of inflation. Real growth rates reflect the true value of goods and services produced in a given year because inflation artificially raises the value of a country's output.
- For example, if a country's nominal GDP rises by 5 per cent in a year but part of this was due to the 3 per cent increase in average prices in the economy, then real GDP has increased by only approximately 2 per cent.

- A **GDP deflator** is used to calculate the economy's real GDP. Real GDP is calculated by dividing nominal GDP by the GDP deflator (an index number) and then multiplying the result by 100.

WORKED EXAMPLE

Consider the data in the table below:

Year	Nominal GDP (\$bn)	GDP deflator
2020	200	100.0
2021	250	102.5
2022	300	105.0

To calculate the real GDP, it is necessary to deflate the nominal GDP by using the GDP deflator (to eliminate the effects of inflation). The base year is 2020 as the GDP deflator is 100:

Year	Nominal GDP (\$bn)	GDP deflator	Real GDP (\$bn) (to 2 d.p.)
2020	200	100.0	$(200.0 \div 100.0) \times 100 = 200.00$
2021	220	102.5	$(220 \div 102.5) \times 100 = 214.63$
2022	240	105.0	$(240 \div 105.0) \times 100 = 228.57$

To measure the economic growth rate, calculate the percentage change in the year-on-year real GDP figures:

Year	Nominal GDP (\$bn)	GDP deflator	Real GDP (\$bn)	Growth rate (%)
2020	200	100.0	200.00	–
2021	220	102.5	214.63	$(214.63 - 200) \div 200 = 7.32$
2022	240	105.0	228.57	$(228.57 - 214.63) \div 214.63 = 6.49$

TOP TIP!

Be careful when interpreting percentage changes in your calculations. Too often, students comment that there is a recession when the rate of economic growth falls. This is true only if there is *negative* economic growth (over two consecutive quarters). An economy that grew by 3 per cent last year and grows by 'only' 2 per cent this year has still achieved positive economic growth.

■ Consequences of economic growth (AO3)

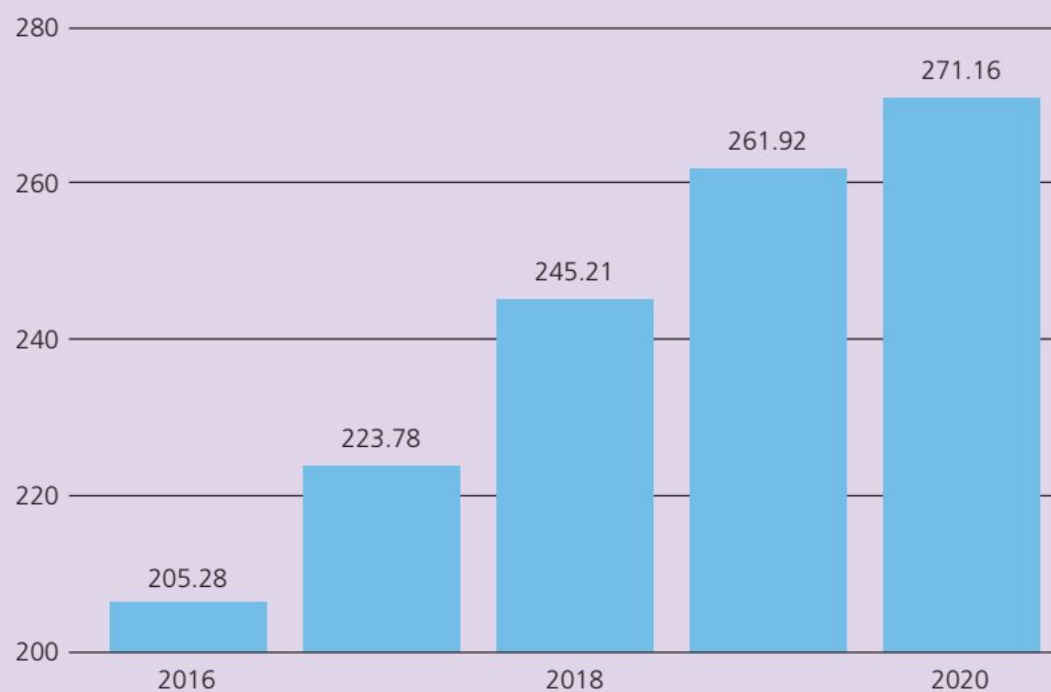
There are both positive and negative consequences of economic growth. These can be categorized into three areas: (1) the impact of economic growth on living standards, (2) the impact on the environment, and (3) the impact on income distribution.

- **Impacts on living standards** – Economic growth generally leads to higher standards of living for the average person. Higher real GDP per capita has several interrelated impacts on the economy, including:
 - The creation of new jobs and lower unemployment in the economy.
 - The reduction or elimination of absolute poverty in the country due to higher real incomes per person.

- Increased profits and capital investment expenditure as firms look to increase the scale of their operations.
 - Increased tax revenues (from taxes imposed on expenditure and income) for government expenditure on merit and public goods.
 - However, there are economic costs associated with an increase in real GDP per capita, such as greater spending on demerit goods (like alcohol and gambling). This will tend to cause a welfare loss to society in the long run.
 - Higher economic growth associated with excessive aggregate demand in the country leads to a greater risk of inflation, with negative consequences on the economy, such as a higher cost of living and a decline in the country's international competitiveness.
- **Impacts on the environment** – Another opportunity cost of economic growth is the impact it has on the natural environment, such as air pollution, road congestion, land erosion, the loss of biodiversity and climate change. Economic growth can therefore create market failures caused by resource depletion (such as deforestation and overfishing) and damage to ecosystems.
 - **Impacts on income distribution** – Economic growth often creates greater disparities in the distribution of income and wealth, widening the gap between rich and poor. This means that not everyone will benefit, nor will they do so in the same way.

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 18.1

The chart below shows the nominal national output for Vietnam over a five-year period. Monetary values are expressed in US dollars.



■ **Figure 18.5** Vietnam's GDP \$bn (2016–20)

Source: Trading economics.com, World Bank <https://tradingeconomics.com/vietnam/gdp>

- a Calculate the year in which Vietnam experienced its highest gain in nominal GDP over the period shown. [2 marks]
- b Calculate the year in which economic growth was at its highest (round figures to 2 decimal places). [2 marks]

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 18.2

Study the data below and answer the questions that follow.

Country	Nominal GDP	
	(\$bn)	Population (million)
China	14,723	1,444.0
Japan	5,065	126.0
USA	20,937	329.0
UK	2,708	67.2

Source: Trading Economics <http://www.tradingeconomics.com/>

- a** Determine which country has the highest and which has the lowest nominal GDP per capita. [3 marks]
- b** Use the data to explain why it is important to account for the population size when comparing nominal GDP figures between different countries. [4 marks]

PAPER 3 EXAM PRACTICE QUESTION 18.3 (HL ONLY)

Refer to the data below in order to complete the table.

[6 marks]

Year	Nominal GDP (\$bn)	GDP deflator	Real GDP (\$bn)	Nominal growth rate (%)	Real growth rate (%)
2020	120.0	100.0	120.00	–	–
2021	126.5	102.8	a	c	e
2022	136.2	106.4	b	d	f

Chapter summary

- Economic growth is a macroeconomic objective that refers to the increase in national output over a period of time. It is measured by the annual percentage change in the economy's real GDP. Hence, it can be represented in a diagram by an outwards shift of the PPC.
- Short-term growth occurs when an economy operates below its full employment level of national income but moves towards its potential level of GDP by using more of its resources and/or more efficiently.
- Actual output is represented by a northeast movement towards the country's PPC because more resources are employed and in a more efficient way. In the AD–AS model, actual growth or short-term growth can also be shown by a movement along an upward sloping SRAS curve.
- Long-term growth can be shown diagrammatically by a rightwards shift of the LRAS curve. Alternatively, it can be shown by an outwards shift of an economy's PPC.
- Economic growth can be measured using real gross domestic product (GDP) and expressed as real GDP per head (or real GDP per capita). Real GDP refers to the value of national income (GDP) that is adjusted for inflation.
- Nominal GDP figures are expressed as *current prices* (the actual monetary value of GDP) whereas real GDP figures are expressed as *constant prices* (the value of GDP after the effects of inflation have been removed).
- Economic growth tends to lead to higher standards of living for most people in the country. This helps to reduce or eliminate absolute poverty in the country.
- However, economic growth often has a negative impact on the environment as it involves using up the world's scarce resources at rates that are not necessarily sustainable. Growth can also have a detrimental impact on income distribution.

19

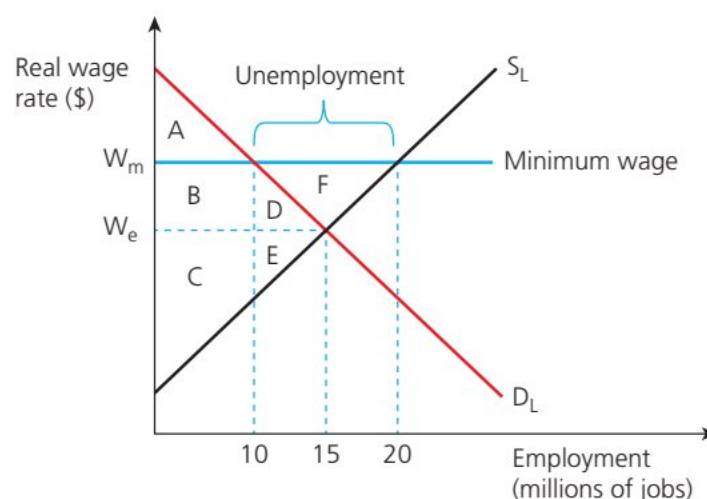
Macroeconomic objectives – low unemployment

■ Low unemployment (AO2, AO4)

- **Employment** refers to the use of factors of production in the production process. The term is usually applied to the use of labour resources.
- Governments aim to ensure that everyone who is willing and able to work is able to find employment.
- **Unemployment** occurs when people are willing and able to work and actively seeking employment but are unable to find work. It exists when the labour market forces of demand and supply are in disequilibrium, so represents inefficiency as it hinders the economy's potential output.
- Low unemployment is a key macroeconomic objective because it:
 - Complements economic growth (another macroeconomic objective) owing to the higher national expenditure associated with higher incomes from employment.
 - Improves social and economic well-being as well as standards of living for the average person.
 - Increases tax revenues, from indirect taxes imposed on incomes as well as indirect taxes from the increased expenditure on goods and services. This enables the government to finance its expenditure on education, healthcare and infrastructure.
 - Reduces the financial burden on the government as there is less of a need for taxpayers to fund social welfare benefits for the unemployed.
 - Prevents a 'brain drain' from the economy (skilled workers leaving the country in pursuit of better employment opportunities).

■ Measurement of unemployment and the unemployment rate (AO2, AO4)

- Figure 19.1 shows **real wage unemployment**, which exists when real wages are above their market equilibrium level due to the imposition of a minimum wage by the government.



Labour market equilibrium exists when the demand for labour (D_L) is equal to the supply of the labour (S_L). This means that everyone of working age who is willing and able to work at the prevailing market real wage rate (W_e) is in employment.

■ **Figure 19.1** Impact of a minimum wage on the labour market

- The following analysis is in reference to Figure 19.1:
 - At the labour market equilibrium real wage rate of W_e , where $D_L = S_L$, there are 15 million people employed in the economy.
 - The minimum wage rate (W_m) raises labour costs for firms, so reduces D_L to 10 million, although there is a greater incentive for workers to offer their labour services, which increases S_L to 20 million. Hence, the minimum wage risks causing 10 million people to be unemployed due to the excess supply of labour (20 million minus 10 million). Essentially, any wage rate above the equilibrium causes excess supply (shown by area F).
 - Area A shows the employer surplus as some firms are willing and able to pay more than the minimum wage (W_m).
 - Area B+C shows the employee surplus as there are 10 million people willing and able to work for less than W_m but receive this as a higher wage rate.
 - The minimum wage causes a market disequilibrium. There is market inefficiency, shown by area D+E, which represents the welfare loss to society.
- The **unemployment rate** measures the number of people who are officially unemployed (those actively looking for employment but cannot find work) as a percentage of the country's workforce, per time period.
- The unemployment rate is calculated by using the formula:

$$\text{Unemployment rate} = \frac{\text{Number of unemployed people}}{\text{Labour force}} \times 100$$
- The workforce (or labour force) consists of all those people in employment plus all those actively seeking employment, that is, it is the sum of the employed, the self-employed and the unemployed. So, a country with a workforce of 55 million people, of which 2 million are actively seeking employment but unable to find jobs, has an unemployment rate = $2 \div 55 = 3.63\%$.

■ Difficulties of measuring unemployment (AO2)

One of the challenges in measuring unemployment is the lack of a universally accepted definition or measure of unemployment of the workforce. For example, the official retirement age for men and women is 67 years in Norway, Italy, Iceland and Greece. The retirement age is 60 years in Japan, South Korea, Malaysia, Peru and Saudi Arabia.

TOP TIP!

The United Nations' **International Labour Organization** (ILO) states 15 is the minimum age for a person to enter the labour force. However, this does mean that full-time students aged 15+ are not considered, because they are not available to work.

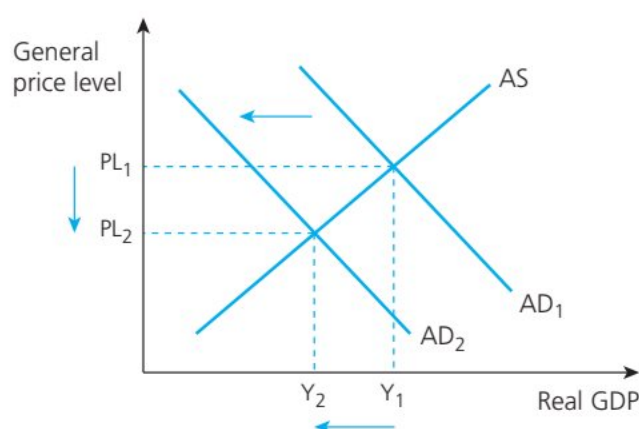
- Due to the various different interpretations and measures of unemployment, it can be difficult to measure unemployment accurately. Such reasons include: (1) hidden unemployment, (2) voluntary unemployment, (3) underemployment, and (4) disparities in the measurement and reporting of unemployment within the economy.
- **Hidden unemployment** (or **disguised unemployment**) refers to those who are technically unemployed, as they do not have full-time jobs, but are not included in the official measurement of unemployment. This includes **discouraged workers** (people who no longer have any motivation to seek employment as they have been unsuccessful/rejected too many times). Hence, they are not included in the labour force as they are no longer actively looking for a job.

- **Voluntary unemployment** refers to individuals who choose not to pursue full-time paid employment. Examples include parents who choose not to work full-time in order to care for their young children, as well as individuals who have decided to take early retirement. These people are classed as being economically inactive rather than being considered as part of the unemployed population.
- **Underemployment** refers to people who are inadequately employed, reflecting the underutilization of the workforce. Although these people have a job, they are not able to fully use their skills or abilities, such as involuntary part-time workers who cannot secure full-time jobs.
- **Disparities** in different regions, ethnic groups, age groups and gender are not accounted for in the measurement of unemployment because it is an average measure for the whole economy at one particular point in time.

■ Causes of unemployment (AO2, AO4)

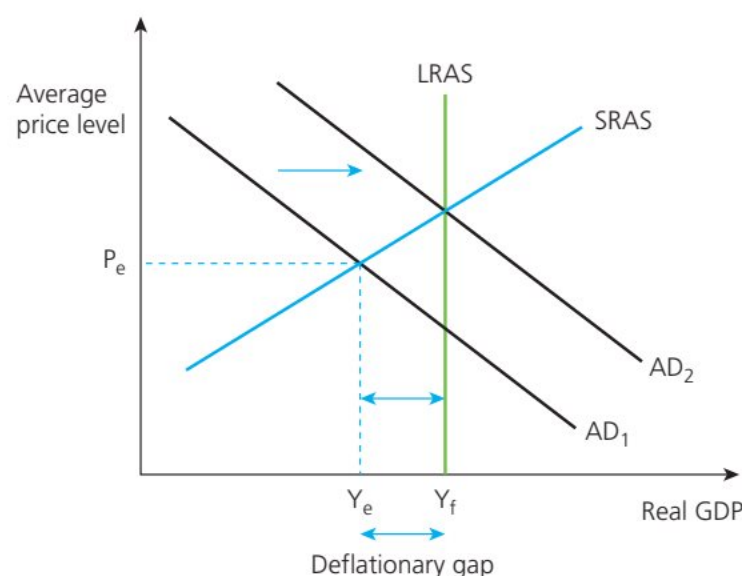
The main causes of unemployment can be categorized in terms of the four main types of unemployment: (1) cyclical (or demand deficient), (2) structural, (3) seasonal, and (4) frictional unemployment.

- **Cyclical unemployment** – This is unemployment that results from a recession in the business cycle. It is caused by a lack of aggregate demand and therefore results in job losses (see Figures 19.2 and 19.3). Hence, cyclical unemployment is also referred to as **demand deficient unemployment**. It is the most severe type or cause of unemployment as it can affect every industry in the economy.



The decline in aggregate demand from AD_1 to AD_2 causes national output (real GDP) to fall from Y_1 to Y_2 . This creates widespread unemployment in the economy, and hence a fall in the general price level from PL_1 to PL_2 .

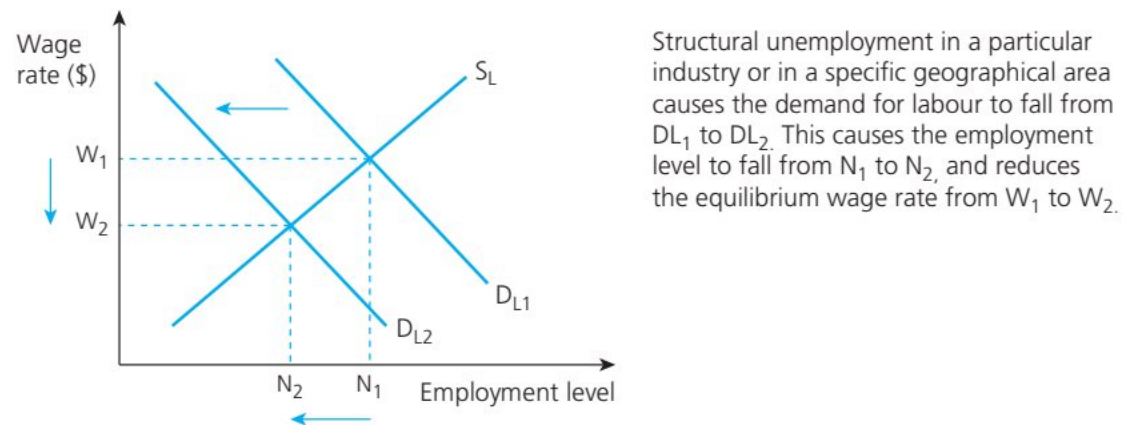
■ **Figure 19.2** Demand deficient unemployment



Alternatively, cyclical unemployment can be represented using a **deflationary gap** diagram as the current level of AD (Y_e) is insufficient (deficient) to create full employment (Y_f). Therefore, the government may intervene to raise aggregate demand from AD_1 to AD_2 , the level that matches the long run aggregate supply (LRAS). This helps to restore full employment equilibrium at Y_f , thereby closing the deflationary gap helps to reduce cyclical unemployment.

■ **Figure 19.3** Unemployment and the deflationary gap

- **Structural unemployment** – This occurs when there is a long-term (permanent) decline in the demand for labour in a specific industry. It arises from the skills mismatch between the jobs available in the economy and the skills of the available workers in the labour market, such as automation replacing human capital in the production process in certain industries. It is usually difficult for those in structural unemployment to find a new job without some assistance and retraining.



■ **Figure 19.4** The impact of structural unemployment on the demand for labour

- **Seasonal unemployment** – This is unemployment caused by regular and periodical changes in demand for certain goods and services at different times of the year. Examples include construction workers during the winter season and ski instructors during the summer, or school bus drivers and teaching assistants during school holidays. It is particularly harmful to those on low incomes trying to manage their income and expenditure throughout the year.
- **Frictional unemployment** – This occurs when people are between jobs owing to the time delay from leaving a job and finding or starting a new one. There is a time lag because it takes time for people to find and apply for the right jobs and for employers to recruit the right people. The greater the labour market imperfections, the longer this delay will tend to be.

■ Natural rate of unemployment (AO2)

- The **natural rate of unemployment** (NRU) refers to the equilibrium rate of unemployment, measured by the level of unemployment when the economy operates at its full employment level of national output.
- Some unemployment naturally exists at the full employment level of real GDP because various people remain out of a job while searching for alternative employment opportunities. Hence, the NRU is the sum of (1) structural unemployment, (2) frictional unemployment, and (3) seasonal unemployment.
- Structural unemployment has long-term implications on the demand for different labour skills in specific industries and the geographical location of these industries. The permanent consequences mean there is natural unemployment in these industries and locations.
- Frictional unemployment is always present because it takes time for the labour market to match available jobs with suitable people looking for jobs.
- Similarly, seasonal unemployment naturally occurs during different times of the year.

■ Costs of unemployment (AO2)

The interrelated costs of unemployment can be categorized as: (1) personal costs, (2) social costs, and (3) economic costs.

- The **personal costs** of unemployment directly impact the individual who is out of a job. These costs include: (1) stress and depression, (2) low self-esteem, (3) poverty (including hunger, malnutrition and poor health), and (4) family breakdowns (arguments, separations and divorces). Prolonged periods of unemployment can also lead to personal bankruptcy and homelessness.
- The **social costs** of unemployment affect third parties. Such costs include: (1) crime and anti-social behaviour (such as theft, alcoholism and vandalism), (2) indebtedness and mass bankruptcies, and (3) social deprivation.
- The **economic costs** of unemployment affect the economy as a whole. These costs include: (1) a loss of GDP, (2) the loss of tax revenues, (3) increased cost of unemployment benefits and increased government debts, (4) widespread poverty in the economy, and (5) greater disparities in the distribution of income and wealth (as women, young adults, ethnic minority groups and those living in rural areas tend to suffer more from prolonged periods of unemployment).

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 19.1

Use the data below to calculate the total number of people unemployed. [2 marks]

Labour force	45 million
Population of working age	65 million
Unemployment rate	8.0%

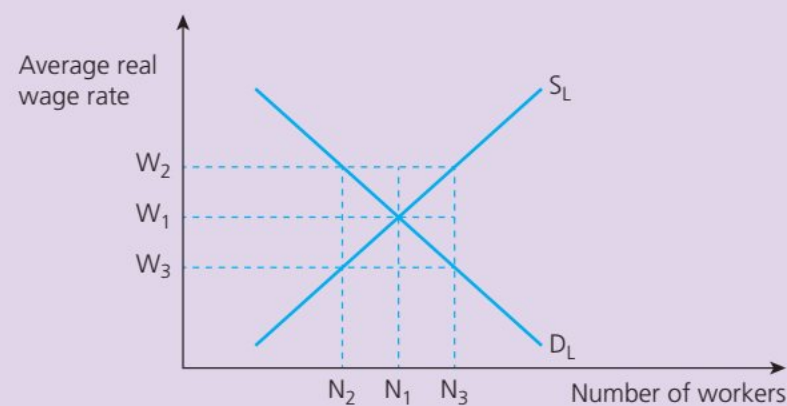
PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 19.2

Use the data below to calculate the unemployment rate. [2 marks]

Total population	100 million
Percentage of population employed	75%
Number of unemployed people	15 million
Retired population	20%

PAPER 3 EXAM PRACTICE QUESTION 19.3 (HL ONLY)

The diagram below shows the supply of labour (S_L) and the demand for labour (D_L) in the economy. Explain why a real wage rate of W_2 will cause real-wage unemployment in the economy. [4 marks]



PAPER 2 EXAM PRACTICE QUESTION 19.4

According to the International Monetary Fund (IMF), Pakistan's annual unemployment rate between 2010 and 2020 was kept steady at around 6%. This, according to the Central Intelligence Agency (CIA), meant Pakistan's gross domestic product (GDP) grew by 4.24% in 2018 and another 5.3% in 2019. Despite the global coronavirus pandemic, Pakistan's **nominal GDP** fell by only 0.47% during 2020. These changes have helped to reduce some of the poverty in the country with a population of over 221 million people.

- a** Define the term *nominal GDP*. [2 marks]
- b** Explain **two** reasons why it might be difficult to measure the exact rate of unemployment in a country. [4 marks]
- c** Explain **two** likely consequences of low unemployment for the Pakistani economy. [4 marks]

Chapter summary

- Governments strive to ensure that everyone who is able and willing to work is able to find employment. Lowering unemployment helps the economy to make the most of its labour resources.
- The unemployment rate measures the number of people unemployed as a percentage of the country's workforce, per time period.
- The labour force consists of all those who are in employment (the employed plus the self-employed) and those actively seeking employment (the unemployed).
- Difficulties in measuring unemployment include: (1) hidden unemployment (employed people who are excluded from the measure of unemployment due to the chosen definition of unemployment), (2) voluntary unemployment, (3) underemployment (people who want full-time jobs but are only able to get part-time jobs), and (4) disparities (such as regional, gender, age and ethnic disparities).
- Causes of unemployment (or types of unemployment) can be categorized as: (1) cyclical (demand deficient), (2) structural, (3) seasonal, and (4) frictional unemployment.
- Cyclical unemployment is caused by a recession, resulting in mass job losses across the economy. It causes a deflationary gap as macroeconomic equilibrium is below the full employment level of national output.
- Structural unemployment occurs when the demand for labour is less than the supply of labour in a particular industry. This typically causes regional unemployment.
- Seasonal unemployment is caused by regular and periodical changes in the demand for labour during different times of the year.
- Frictional unemployment is the result of the delay between workers leaving a job and finding or starting a new one.
- Costs of unemployment include personal, social and economic costs, such as stress, social deprivation and lower economic growth, respectively.

TOP TIP!

Inflation is not necessarily detrimental to the economy as a low and stable rate of inflation is a sign of economic growth and price stability. Low rates of inflation are not usually harmful to an economy – it is only when inflation rises too quickly that it can disrupt decision-making for individuals, firms and governments.

■ Low and stable rate of inflation (AO2, AO4)

- **Inflation** is the sustained (continual) rise in the average price level in an economy over time.
- Therefore, the cost of living rises because households and firms need to spend more money to buy the same amount of goods and services as before. That is, inflation reduces the purchasing power of money.
- At a global level, inflation reduces a country's international competitiveness.

■ Measuring the inflation rate (AO2, AO4)

- The **consumer price index** (CPI) is a weighted index of the average consumer prices of goods and services over time. It is the most common method used to measure inflation (and therefore changes in the cost of living) for the typical or average household in the economy. Calculating changes in the value of the CPI gives the rate of inflation.
- A **base year**, with an assigned index number of 100, is used as the starting period when calculating a price index such as the CPI. So, a price index of 115.2 means that prices have increased by an average of 15.2 per cent since the base year. If average prices rise by another 5 per cent in the following year, the price index becomes 120.96 (that is, 115.2×1.05). This means that prices have increased by an average of 20.96 per cent since the base year.
- The CPI uses statistical weights to reflect the relative importance of household spending on each of the items of expenditure in the representative list of goods and services. There are two ways to apply these weights to the CPI:
 - *Volume of quantities purchased* * – It is assumed that the more times and the greater the quantities purchased, the more important the item is to the average household. The weights are therefore based on quantities purchased per month.
 - *Value of quantities purchased* – Similarly, it can be assumed that the more money an average family spends on a product as a proportion of its overall spending, the more important that product is to the family. Hence, such products would have a larger statistical weight applied in the calculation of the CPI.
- The statistical weights in the CPI are revised periodically to reflect changes and trends in the expenditure of a typical household in the economy.

TOP TIP!

* SL and HL students need to be able to calculate the inflation rate from a set of data that will be provided, using *quantities purchased* as weights in the CPI. HL students are also expected to be able to construct and calculate a weighted price index from a given set of data.

TOP TIP!

Students often refer to the CPI as changes in the average price level of a representative basket of *goods*, without acknowledging that *services* are also included in the calculation.

WORKED EXAMPLE

In the simplified example below, there are three products in the representative basket of goods and services in an unweighted CPI. Assume 2018 is the base year, when the total price of the basket of the three products was \$20.

Product	Price per unit in 2019	Price per unit in 2020
Pizza	\$9	\$10
Cinema ticket	\$10	\$11
Petrol	\$3	\$3.5
Total basket price	\$22.0	\$24.5

To calculate the inflation rate between 2019 and 2020, first calculate the price indices for the two years:

- 2019: $\$22 \div \$20 \times 100 = 110.0$ (that is, prices in 2019 were 10% higher on average than in 2018).
- 2020: $\$24.5 \div \$20 \times 100 = 122.5$ (that is, prices in 2020 were 22.5% higher on average than in 2018).
- The inflation rate between 2019 and 2020 is the percentage change in the price indices, that is, $[(122.5 - 110) \div 110] \times 100 = \mathbf{11.36\%}$.

WORKED EXAMPLE

The example below is an extension of the above, showing how a weighted CPI is calculated. This method uses the volume of quantities purchased per time period as the statistical weight. Assume that the same quantities were purchased in 2019 and 2020.

Item	Price per unit in 2019	Price per unit in 2020	Quantity in basket	Value of basket 2019	Value of basket 2020
Pizza	\$9	\$10	6	\$54	\$60
Cinema ticket	\$10	\$11	3	\$30	\$33
Petrol	\$3	\$3.5	15	\$45	\$52.5
Total basket price	\$22	\$24.5		\$129	\$145.5

To calculate the inflation rate between 2019 and 2020, using a weighted price index, first calculate the value of the basket of goods and services for both years:

- 2019: $(\$9 \times 6) + (\$10 \times 3) + (\$3 \times 15) = \129
- 2020: $(\$10 \times 6) + (\$11 \times 3) + (\$3.5 \times 15) = \145.5
- The inflation rate between 2019 and 2020 is the percentage change in the weighted price of the basket of goods and services, that is, $[(145.5 - 129) \div 129] \times 100 = \mathbf{12.79\%}$.

■ The limitations of the CPI in measuring inflation (AO2)

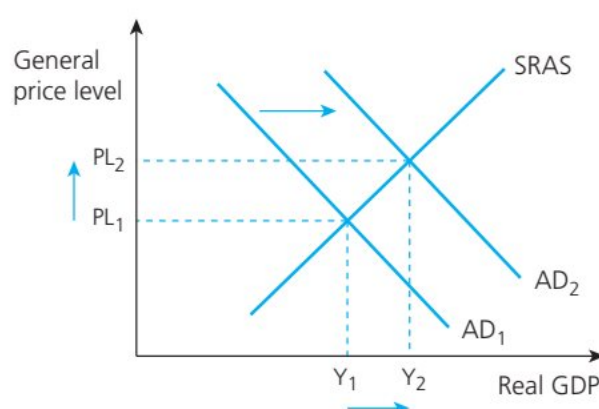
- **Atypical households** – The CPI takes only an average measure, that is, it simply considers the expenditure of the ‘average’ household despite what this might actually mean in multicultural and diverse societies in the real world. Hence, the CPI might have minimal if any relevance for atypical households, such as expatriate families in an overseas country.
- **Regional and international disparities** – The CPI does not reflect regional differences and disparities in prices and the cost of living. Prices can vary enormously within and between economies, making comparisons difficult. For example, housing costs are extremely high in Hong Kong and Singapore but far more affordable in Hungary or Scotland.

- **Different income earners** – Different people, on different levels of income, can experience a different rate of inflation because their pattern of expenditure is not necessarily or accurately reflected by the CPI owing to different consumption patterns between high-, middle- and low-income earners.
- **Changes in product quality** – As a price index, the CPI ignores changes in the quality of goods and services over time. So, while some products increase in price, the CPI ignores the higher specifications and build quality that are not reflected in the calculation.
- **Different patterns of consumption over time** – Consumption patterns change over time, thereby affecting average price levels. Although each product in the CPI is weighted, as the popularity of most goods and services change over time, these need to be reflected in the CPI calculations. This makes historical comparisons of inflation rather misleading or inaccurate.
- **Time lags** – Calculations may not accurately reflect changes in consumption patterns due to time lags in collecting data to compile the CPI. Given the huge amount of data collection and reporting needed to construct the CPI, the data may well be out of date or inaccurate by the time of publication.
- **Volume or value of quantities purchased** – The calculation of the CPI by using *quantities purchased* as weights (rather than the percentage of income spent on the items) is also a limitation. For example, a typical household might spend \$80 on refuelling the family car every two weeks (so makes only two purchases per month), whereas the same family might buy eight loaves of bread in the same time period. Hence, while applying a weight in the CPI based on the quantities purchased is simple, it is also somewhat trivial.

■ Causes of inflation (AO2, AO4)

In general, there are two main causes of inflation: (1) demand-pull inflation, and (2) cost-push inflation.

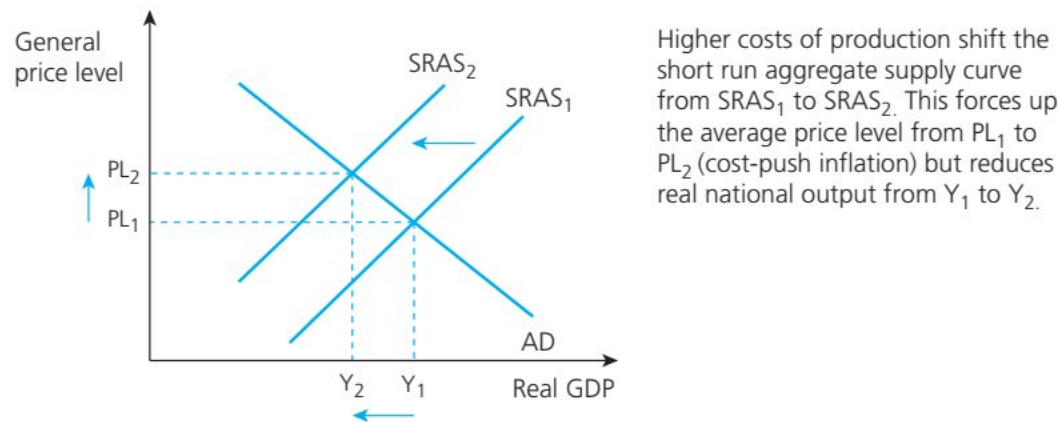
- **Demand-pull inflation** is triggered by higher levels of aggregate demand (AD) in the economy, which drives up the general price level. Diagrammatically, this is shown by a rightwards shift of the AD curve (see Figure 20.1).
- It is caused by excessive aggregate demand, that is, AD increasing at a faster rate than aggregate supply (AS), thereby forcing up the average price level.
- An increase in any component of aggregate demand (consumption, investment, government spending and net exports) will tend to cause demand-pull inflation.



During an economic boom, the consumption of goods and services increases due to higher levels of employment and higher real GDP per capita. This results in a rightwards shift of the AD curve from AD_1 to AD_2 , raising national income from Y_1 to Y_2 and increasing the general price level from PL_1 to PL_2 . Hence, this causes demand-pull inflation.

■ **Figure 20.1** Demand-pull inflation

- **Cost-push inflation** refers to inflation caused by higher costs of production, such as higher rents or raw material prices. This shifts the short run aggregate supply (SRAS) curve to the left and forces up average prices (see Figure 20.2).
- Higher production costs push firms to raise their prices in order to maintain their profit margins. Diagrammatically, this is shown by a leftwards shift of the SRAS curve.
- Possible causes of cost-push inflation include: (1) higher imported prices of raw materials, components (semi-finished goods) and finished goods for sale, (2) higher labour costs in the economy, (3) increased corporation taxes, and (4) escalating rents on commercial properties.



■ **Figure 20.2** Cost-push inflation

■ Costs of a high inflation rate (AO2)

High inflation is undesirable owing to the costs on the economy and society. These interrelated costs include: (1) uncertainty, (2) redistributive effects, (3) the effects on savings, (4) damage to export competitiveness, (5) the impacts on economic growth, and (6) inefficient resource allocation.

- **Uncertainty** – Inflation lowers the spending power of households and firms in the economy. This creates uncertainty, especially when the inflation rate is extremely high, and reduces both consumer and business confidence. The uncertainty can lead to lower economic growth over the long term.
- **Redistributive effects** – The effects of inflation are not distributed evenly among different stakeholders in the economy. This happens in particular when the prices of essential goods and services, such as food products and utilities (water, gas and electricity), rise at a rapid rate, which has a larger impact on low-income households and small-sized firms as they are most vulnerable to rising costs of living and costs of production.
- **The effects on saving** – Savers tend to lose from high inflation because it reduces the real rate of return for savers. For example, if banks pay 0.5 per cent interest on people's savings accounts but the inflation rate is 1.5 per cent, then the real interest rate is -1.0 per cent. Hence, inflation discourages savings as money becomes less effective as a store of value.
- **Damage to export competitiveness** – Higher inflation rates cause exports to be less price competitive, leading to a fall in exports and a deterioration in the country's current account on the balance of payments. By contrast, imports become cheaper for domestic consumers and firms, so they may choose to substitute domestic products for imported ones. Overall, this reduces the export sales and profitability of domestic firms, which slows or reduces economic growth and causes higher unemployment.

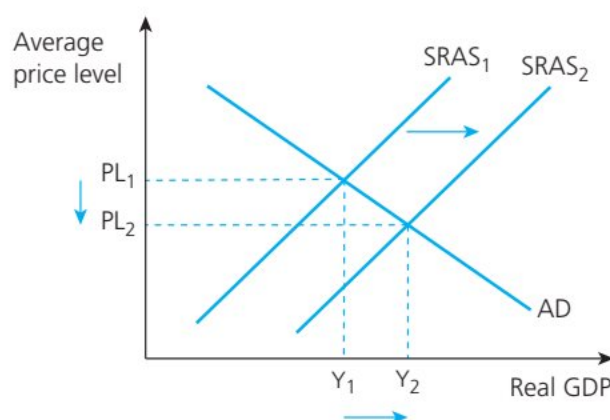
TOP TIP!

In summary, the interrelated economic costs of inflation can be remembered by the acronym **REUSER**:
Redistributive effects, **E**xport competitiveness, **U**ncertainty, **S**avings, **E**conomic growth, and **R**esource allocation.

- **The impact on economic growth** – The combination of uncertainty and the lower expected real rates of return on capital investments (due to higher costs of production) tends to lower the amount of planned investment in the economy. In the long run, a lack of investment expenditure and international competitiveness (due to higher average prices) is harmful to the country's economic growth.
- **Inefficient resource allocation** – High inflation can cause inefficiencies as higher prices can distort resource allocation and prevent the economy from operating at the full employment level of real national income. Unemployment itself, caused by the harmful effects of inflation, represents allocative inefficiencies.

Causes of deflation (AO2, AO4)

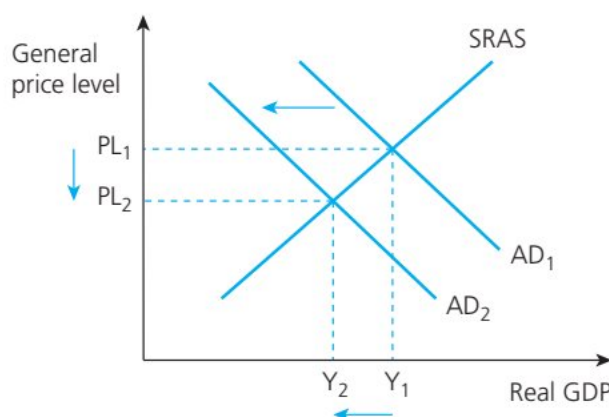
- **Deflation** is the persistent fall in the general price level in an economy over time. This means the inflation rate is negative.
- It can be caused by a continual decline in aggregate demand (AD) and/or an increase in the short run aggregate supply (SRAS).
- Deflation can be caused by an outwards shift of the SRAS curve. This is known as **benign deflation**, which is generally positive as the economy is able to produce more, thereby boosting real GDP and employment, without an increase in the general price level (see Figure 20.3).



The higher level of aggregate supply drives down the average price level of goods and services from PL_1 to PL_2 while increasing real GDP from Y_1 to Y_2 . Hence, benign deflation is non-threatening to an economy if lower prices enable households to have cheaper access to a greater number and variety of goods and services, and for exporters to be more competitive.

■ **Figure 20.3** Deflation caused by supply-side factors

- However, economists are concerned with **malign deflation**, which is generally harmful to the economy due to a decline in aggregate demand for goods and services in the economy. It is usually associated with an economic recession and rising levels of unemployment (see Figure 20.4).



Malign deflation is caused by a leftwards shift of the aggregate demand curve from AD_1 to AD_2 . This reduces real national income from Y_1 to Y_2 and forces down the general price level from PL_1 to PL_2 . Such deflation is harmful to the economy due to the fall in real GDP and subsequent rise in unemployment.

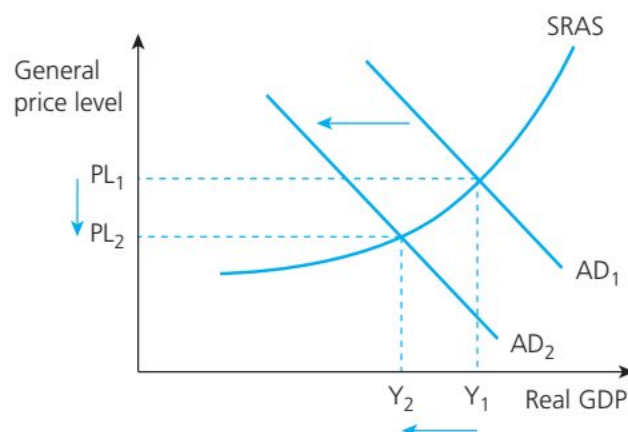
■ **Figure 20.4** Deflation caused by demand-side factors

TOP TIP!

As a high rate of inflation is generally harmful to the economy, some students argue that deflation is beneficial because the average price level of goods and services has fallen, which increases the purchasing power of money. However, this will depend on the cause(s) of deflation. An adverse change in AD, causing a recession, is not beneficial to the economy even if average price levels fall. In fact, deflation can be significantly worse for the economy than inflation.

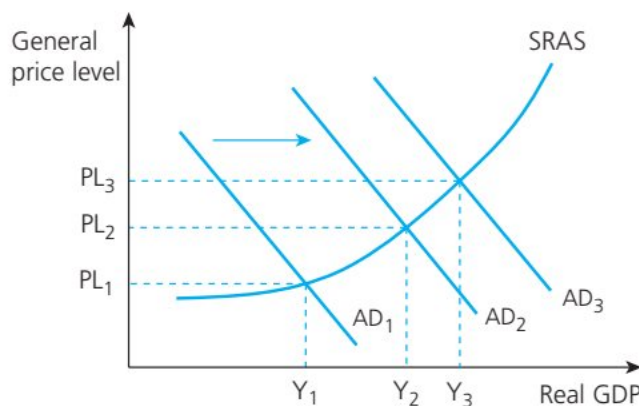
■ Disinflation and deflation (AO2)

- **Disinflation** occurs when there is a fall in the rate of inflation, that is, prices are still rising, but at a slower pace. The rate of inflation remains positive.
- **Deflation** occurs when there is an actual fall in the general price level, that is, the rate of inflation is negative.
- Disinflation can lead to deflation if not controlled effectively, with negative consequences for the economy and a fall in the standards of living in the country.
- Diagrammatically, deflation results in *lower* average prices (see Figure 20.5), whereas disinflation is shown by a smaller proportional *increase* in average prices (see Figure 20.6).



The fall in aggregate demand from AD_1 to AD_2 causes real national output to fall from Y_1 to Y_2 , with the general price level falling from PL_1 to PL_2 . This is known as deflation.

■ **Figure 20.5** Deflation



An increase in aggregate demand from AD_1 to AD_2 causes real GDP to rise from Y_1 to Y_2 , but average prices also rise from PL_1 to PL_2 . Disinflation occurs when the rate of increase in AD slows down (from AD_2 to AD_3 , for example), which reduces the rate of increase in the general price level from PL_2 to PL_3 . Average prices continue to rise, but at a slower rate.

■ **Figure 20.6** Disinflation

TOP TIP!

Make sure you can distinguish between *disinflation* and *deflation*, as these terms are frequently confused by students in the exams. A fall in the rate of inflation (disinflation) means that prices are generally still rising, but at a slower rate. Be clear about the meaning of deflation – an actual fall in the general price level.

■ Costs of deflation (AO2)

The interrelated costs of malign deflation are: (1) uncertainty, (2) redistributive effects, (3) deferred consumption, (4) association with high levels of cyclical unemployment and bankruptcies, (5) higher real value of debt, (6) inefficient resource allocation, and (7) policy ineffectiveness.

- **Uncertainty** – Deflation causes uncertainty in the economy, such as an increase in the real value of debts, so this reduces both consumer and business confidence levels. Uncertainties add further economic problems, such as deferred consumption and investment expenditure. Hence, uncertainties can have detrimental impacts on economic growth and employment.
- **Redistributive effects** – Deflation causes a fall in the value of assets and household wealth as incomes, profits and asset values (such as share prices) fall. Deflation also leads to a redistribution of income and wealth from debtors (borrowers) to creditors (lenders) as the real value of debts will increase.
- **Deferred consumption** – Deflation can cause consumption to be postponed as consumers wait in anticipation of further falls in the prices of goods and services, and because consumer confidence is low. Hence, deferred consumption slows down the level of economic activity, causing a fall in business profits and investments, and possibly prolonging an economic recession.
- **Association with high levels of cyclical unemployment and bankruptcies** – A fall in aggregate demand causes a fall in the derived demand for labour in the economy, that is, deflation can cause cyclical unemployment, that is, mass job losses throughout the economy.
- **Increase in the real value of debt** – The real cost of debts (borrowing) increases when there is deflation because real interest rates rise when the price level falls, ceteris paribus. For example, if interest rates average 0.5 per cent but the inflation rate is –1.0 per cent, then the real interest rate is approximately 1.5 per cent. This means that deflation makes it more difficult for debtors (borrowers) to pay off their debts at a time when firms earn less revenue and consumers earn lower wages.
- **Inefficient resource allocation** – Deflation is usually caused by a weak economy, that is, a significant fall in the level of AD and real GDP that leads firms to cut their prices. The damaging effects of deflation also cause market distortions, such as greater uncertainty, deferred consumption and investment expenditure, bankruptcies, cyclical unemployment, and an increase in the real value of debt.
- **Policy ineffectiveness** – Policy measures adopted by the government to achieve macroeconomic goals such as economic growth and low unemployment become less effective when the economy faces deflation. Given the weak economy, governments would ordinarily lower interest rates to increase AD, but nominal interest rates cannot fall below zero so monetary policy becomes ineffective. Such policy ineffectiveness can also lead to lower growth and higher unemployment in the economy.

TOP TIP!

'Deflation makes consumers and households better off because goods and services are cheaper in the economy.'

Deflation is usually associated with a weakening economy, so national income is likely to be falling. It is also associated with higher levels of unemployment due to the lack of aggregate demand. Although prices are generally falling, consumption and investment expenditure are also in decline. Debt is also likely to rise as a result of this.

■ Relative costs of unemployment versus inflation (AO3)

- Both low unemployment and low and stable inflation are key macroeconomic objectives. This is because policymakers know that both high unemployment and high inflation have major costs on the macroeconomy.
- There are personal, social and economic costs of high unemployment (see Table 20.1).
- The costs of high inflation include: (1) uncertainty, (2) harmful redistributive effects, (3) negative effects on savings, (4) damage to export competitiveness, (5) detrimental impact on economic growth, and (6) inefficient resource allocation.

■ **Table 20.1** The costs of unemployment and inflation

Costs of unemployment	Costs of inflation
Psychological costs	Increases the cost of living
Social problems	Deferred consumption and investment
Loss of household incomes (earnings)	Decline in international competitiveness
Higher government borrowing	Savings eroded
Slower economic growth	Uncertainty
Rising income and wealth inequalities	Higher costs of production

- Although these costs are not mutually exclusive, as unemployment and inflation are interlinked, governments often struggle to decide which macroeconomic objective to pursue as a priority.
- Government priorities change over time, and contexts are also important to consider. For example, during the coronavirus pandemic that started in 2019, countries went into a deep global recession, so protecting jobs (low unemployment) became the priority for many governments, even if this would lead to some demand-pull inflation.
- By contrast, countries such as Venezuela and Sudan, with inflation rates of 2,720 per cent and 363 per cent respectively in 2021, prioritized lowering their high rates of inflation.
- In deciding which macroeconomic objective to pursue as a priority, policymakers consider the breadth and severity of the relative costs of unemployment and inflation. They also need to consider the magnitude of inflation and unemployment rates in the economy.

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 20.1

Study the following data and answer the question that follows.

Year	Inflation rate (%)	Wage increase (%)
1	2.5	3.0
2	3.1	3.5
3	2.9	3.1

- a** Identify the year in which there was the largest increase in real wages. Explain your answer. [3 marks]
- b** Use the data to explain why average wages were higher in Year 3 than in Year 2. [3 marks]

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 20.2

The data below show the inflation rates for a country over three years.

Year	1st	2nd	3rd
Inflation rate (%)	2.5	1.7	2.3

- a Define the term *inflation rate*. [2 marks]
- b Explain why inflation was at its highest level in the third year. [2 marks]

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 20.3

Calculate the inflation rate if the consumer price index (CPI) increases from 125.0 in Year 1 to 128.45 in Year 2. [2 marks]

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 20.4

Calculate the consumer price index (CPI) if there is 2.8% inflation during the year and the price index in the previous year was at 138.5. [2 marks]

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 20.5

Calculate how much a basket of goods and services currently priced at \$2,400 would be if the consumer price index (CPI) increases from 132.0 to 136.29. [2 marks]

PAPER 3 EXAM PRACTICE QUESTION 20.6 (HL ONLY)

Calculate the weighted price index from the information below. [3 marks]

Item	Price index	Statistical weight
Food and drink	120	25
Transportation	110	15
Leisure and entertainment	115	20
Housing	140	40

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 20.7 (HL ONLY)

Study the data below and answer the following questions.

Item	Consumer price index	Statistical weight
Clothing	110	10
Food	120	20
Housing	130	30
Others	140	40

- a Define the term *consumer price index* (CPI). [2 marks]
- b Explain what the data suggest about the typical household's spending on housing and food. [2 marks]
- c Calculate the weighted consumer price index (CPI). [4 marks]

PAPER 1 EXAM PRACTICE QUESTION 20.8

Using appropriate diagrams, explain the difference between demand-pull inflation and cost-push inflation. [10 marks]

PAPER 1 EXAM PRACTICE QUESTION 20.9

Explain the difference between deflation and a deflationary gap.

[10 marks]

PAPER 2 EXAM PRACTICE QUESTION 20.10

The chart below shows the inflation rates (in %) in Ecuador between 2016 and 2021.



SOURCE: TRADINGECONOMICS.COM | INEC, ECUADOR

Source: <https://tradingeconomics.com/ecuador/inflation-cpi>

- a Define the term *deflation*. [2 marks]
- b Explain what evidence there is in the chart to suggest that Ecuador suffered from both disinflation and deflation during the five-year period shown. [4 marks]
- c Explain the impacts of prolonged deflation for the Ecuadorian economy. [4 marks]

PAPER 1 EXAM PRACTICE QUESTION 20.11

Explain why governments aim for a low and stable rate of inflation as a macroeconomic objective.

[10 marks]

Chapter summary

- Inflation is the persistent rise in the general price level in an economy, over time.
- Governments set a target inflation rate as a key macroeconomic objective due to the potentially harmful impacts of inflation on the economy. For example, as inflation dampens business and consumer confidence in the economy, firms are less likely to spend money on capital investments and households defer their expenditure.
- Inflation, deflation and disinflation are typically measured by using a consumer price index (CPI). This is a statistically weighted index measuring the change in prices of a representative basket of goods and services consumed by the average household.
- However, the CPI is limited in that it represents changes in the cost of living for the average household only, so atypical households and regional disparities are ignored.
- The causes of inflation can be categorized as demand-pull or cost-push. Demand-pull inflation is caused by higher levels of AD in the economy, which drives up the general price level. Cost-push inflation is caused by higher costs of production, thereby forcing up average prices.
- The costs of a high rate of inflation are: (1) uncertainty, (2) redistributive effects, (3) the detrimental effects on savings, (4) damage to export competitiveness, (5) the negative impact on economic growth, and (6) inefficient resource allocation.

- Deflation is the persistent fall in the average price level in an economy over time, that is, the inflation rate is negative. It can be caused by a continual decline in aggregate demand and/or an increase in aggregate supply.
- Disinflation occurs when there is a fall in the rate of inflation, that is, prices are still rising, but at a slower rate. Disinflation can lead to deflation if not controlled.
- The cost of malign deflation (harmful deflation) are: (1) uncertainty, (2) redistributive effects, (3) deferred consumption, (4) association with high levels of cyclical unemployment and bankruptcies, (5) increase in the real value of debt, (6) inefficient resource allocation, (7) and policy ineffectiveness.
- Economists and policymakers are challenged by prioritizing between unemployment and inflation; while both are costly to the economy, it is not always clear which one causes more harm to the economy.

Macroeconomic objectives – sustainable level of government (national) debt (HL only)

■ Sustainable level of government (national) debt (HL only) (AO2)

- A **budget deficit** exists when the value of government spending exceeds its revenue per time period. It occurs when government spending (G) exceeds tax revenues (T), that is, $G > T$. For example, during the coronavirus pandemic, governments across the world increased their level of spending in order to support households and businesses owing to the major economic recession. This leads to government or national debt.
- **Government debt** is the sum of all accumulated government budget deficits from previous years. It represents the total amount of money owed by a government to its domestic and foreign creditors, such as commercial banks, the IMF and the World Bank.
- A sustainable level of government debt is important for the effective operations of the economy over the long term as no government can continually spend more than it collects from tax revenues.
- Running a budget deficit can be beneficial in the short run as the government spending represents an injection into the circular flow of income, thereby stimulating economic growth and maintaining and/or creating jobs. However, budget deficits are not sustainable in the long run.
- The extent to which national debt is affordable and sustainable is determined by measuring the government's debt in relation to the country's gross domestic product (GDP).

■ Measurement of government debt (AO2)

- The main way to measure government debt is to express the national debt as a percentage of GDP. This shows the percentage of annual national income that the government owes to its creditors.
- The **debt to GDP ratio** expresses a country's national debt as a percentage of its GDP (national income). The higher the debt to GDP ratio, the more unaffordable the debt.

■ Relationship between a budget deficit and government debt (AO2)

- There is a direct relationship between a budget deficit and national debt because each time a government runs a budget deficit, it adds to the national debt. After all, government debt is the accumulation of government budget deficits in previous years.
- Government debt needs to be managed carefully as debt interest means that national debt will simply grow exponentially if repayments are not made. Escalating debts may require the government to run further budget deficits.

- Any time when the government can run a budget surplus ($T > G$), this surplus can be used to pay off some of the existing national debt.
- While it can be acceptable and affordable for governments to borrow money to finance their spending (and therefore to incur budget deficits), this is not sustainable in the long run. For example, Venezuela had a national debt to GDP ratio of 350 per cent in 2021. This meant that for every \$1m of GDP, the nation owed \$3.5m. The government would need to pay off this debt over time, by reducing its spending and/or raising tax revenues.

■ Costs of government debt (AO2)

Costs of high government (national) debt include: (1) debt servicing costs, (2) credit ratings, and (3) the impacts on future taxation and government spending.

- **Debt servicing costs** – This refers to the costs of financing the national debt, that is, the loan repayment plus interest charges incurred on the loan. Compound interest on outstanding government borrowing adds to the national debt, so this must be managed carefully. There is also a large opportunity cost to debt servicing.
- **Credit ratings** – This measures a borrower's ability to repay a loan. Borrowers with a high credit rating (credit worthiness) are more likely to be approved for loans as they are in a better position to repay the funds. Credit ratings are related to the borrower's credit history and measured level of risk. Escalating government debts mean the country will have a lower credit rating, which makes the nation less attractive to financial lenders.
- **The impacts on future taxation and government spending** – National debt that is not managed and repaid will continue to increase exponentially due to compound interest, making it even more difficult to pay off. The likely result of this is cutbacks in government spending in order to repay national debt. Essentially, this entails **austerity measures** (the combination of reductions in government spending and increases in taxation).

TOP TIP!

'Budget deficits are generally harmful to the economy, whereas budget surpluses add more money into the economy so are good for the economy.' Why is this statement incorrect?

Although a budget deficit causes an increase in the national debt, this may be beneficial to the economy, especially during a recession. Having a budget surplus is not necessarily beneficial either as taxes were higher than perhaps necessary, which could have hindered incentives to work and invest.

PAPER 3 EXAM PRACTICE QUESTION 21.1 (HL ONLY)

Country	Government debt (\$)	Nominal GDP (\$)
Spain	1,329,687,275,000	1,460,000,000,000
Brazil	1,109,207,000,000	2,020,000,000,000

Use the data above to calculate the debt to GDP ratio for Spain and Brazil, and comment on your findings.

[4 marks]

PAPER 1 EXAM PRACTICE QUESTION 21.2 (HL ONLY)

Explain the difference between a budget deficit and government debt. [10 marks]

PAPER 1 EXAM PRACTICE QUESTION 21.3 (HL ONLY)

Explain the relationship between a budget deficit and government debt. [10 marks]

Chapter summary

- A budget deficit exists when the value of government spending exceeds government revenue ($G > T$), thereby contributing to the national debt.
- National debt is the accumulated budget deficits of a country and can have positive impacts in the short run (as it represents an injection into the circular flow of income), whereas it is not sustainable and incurs costs in the long run.
- A sustainable level of government debt is important for the effective operations of the macroeconomy over the long term.
- The main method of measuring government debt is the *debt to GDP ratio*, which expresses national debt as a percentage of the country's GDP.
- There is a direct relationship between budget deficits and government debt, that is, budget deficits add to the value of a nation's debts.
- The costs of high government (national) debt include: (1) high debt servicing costs, (2) poor credit ratings, and (3) detrimental impacts on future taxation and government spending.
- Austerity measures may be required to tackle escalating national debt: that is, cutbacks in government spending and/or increased taxation.

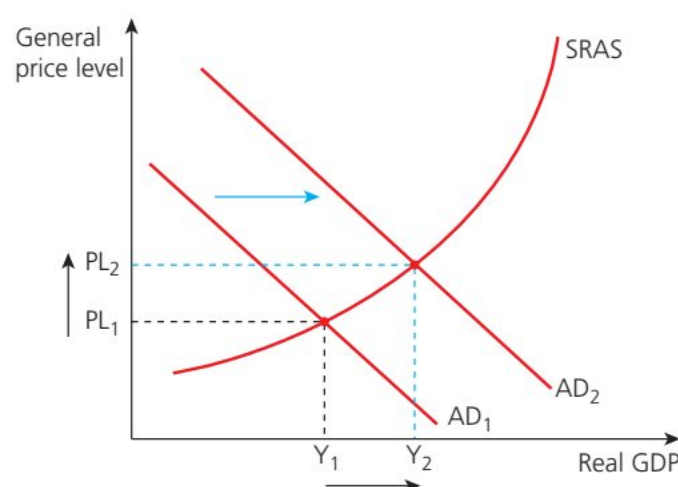
Macroeconomic objectives – potential conflict between macroeconomic objectives

■ Potential conflict between macroeconomic objectives (AO3, AO4)

- It is not always possible for a government to simultaneously achieve all of its macroeconomic objectives owing to potential conflicts between these goals. This leaves the government with several trade-offs or **conflicting macroeconomic objectives**.
- Examples of potential conflict between macroeconomic objectives include:
 - ☐ low unemployment and low inflation
 - ☐ high economic growth and low inflation
 - ☐ high economic growth and environmental sustainability
 - ☐ high economic growth and equity in income distribution.
- Ultimately, the government has to decide and prioritize which macroeconomic aim is the most important to the economy at a particular point in time.

■ Low unemployment and low inflation (AO3, AO4)

- When the economy grows rapidly, more people are in paid employment so inflationary pressures are likely to occur as the economy reaches its full employment level of national output.
- However, economic growth fuelled by higher aggregate demand is likely to result in demand-pull inflation as AD increases faster than AS.
- Alternatively, low unemployment can cause cost-push inflation because full employment makes it harder for firms to attract skilled labour. Hence, this can lead to wage inflation (and hence higher prices in general).



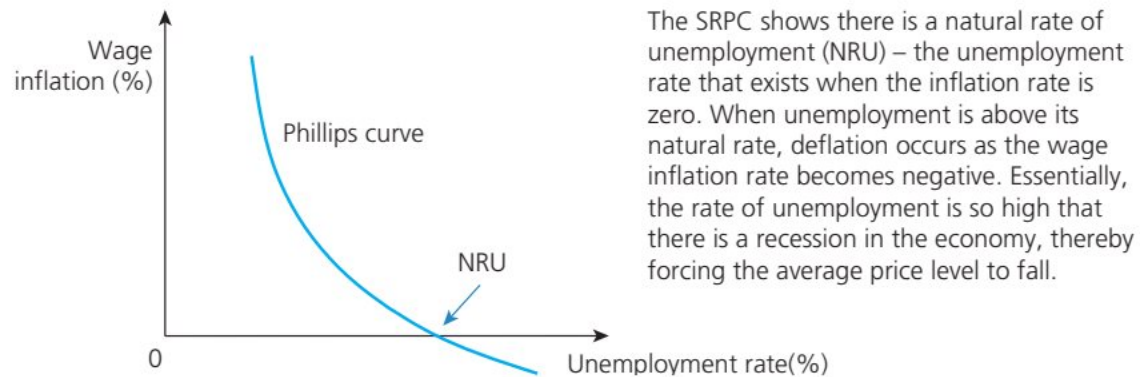
The increase in AD from AD₁ to AD₂ is brought about by a rise in the level of economic activity, which subsequently reduces unemployment in the economy. While this results in an increase in real GDP from Y₁ to Y₂, the opportunity cost of pursuing low unemployment is the increase in the general price level from PL₁ to PL₂.

■ **Figure 22.1** The potential conflict between low unemployment and low inflation

■ Trade-off between unemployment and inflation (HL only)

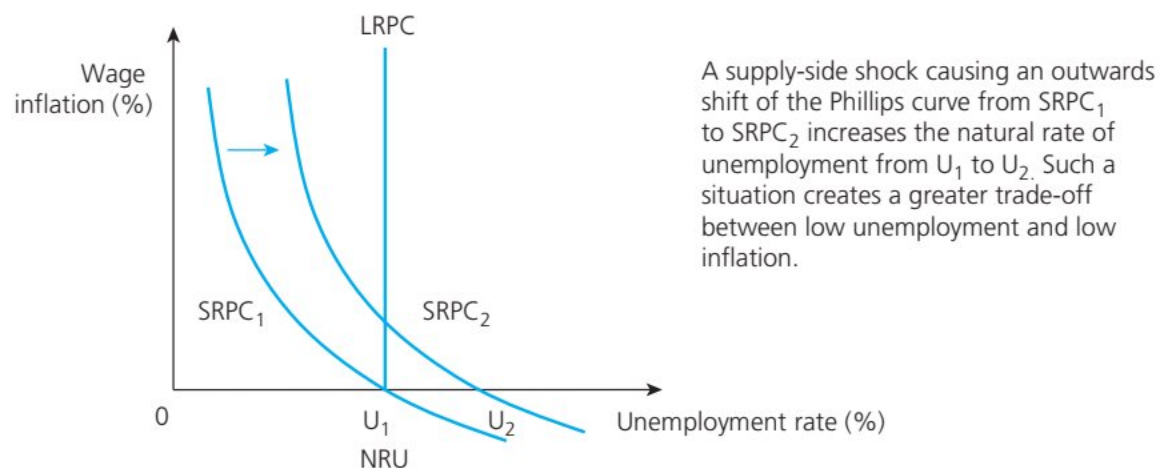
- The trade-off between low unemployment and low inflation (represented by changes in nominal wages) can be demonstrated by the Phillips curve, suggesting that the government might not be able to achieve both macroeconomic objectives at the same time.

- The **short run Phillips curve** (SRPC) shows a potential trade-off between pursuing low unemployment and low inflation as macroeconomic objectives. A fall in unemployment, due to an increase in AD and economic growth, creates more consumption expenditure, thereby fuelling higher average prices in the economy (shown by a movement up to the left along the SRPC). As the rate of unemployment falls, the rate of wage inflation increases, thereby creating a trade-off.



■ **Figure 22.2** The short run Phillips curve (SRPC)

- Supply-side shocks can shift the SRPC. Examples include oil shortages causing price hikes, financial crises, natural disasters (such as major earthquakes or severe flooding or droughts), and the widespread outbreak of infectious diseases.



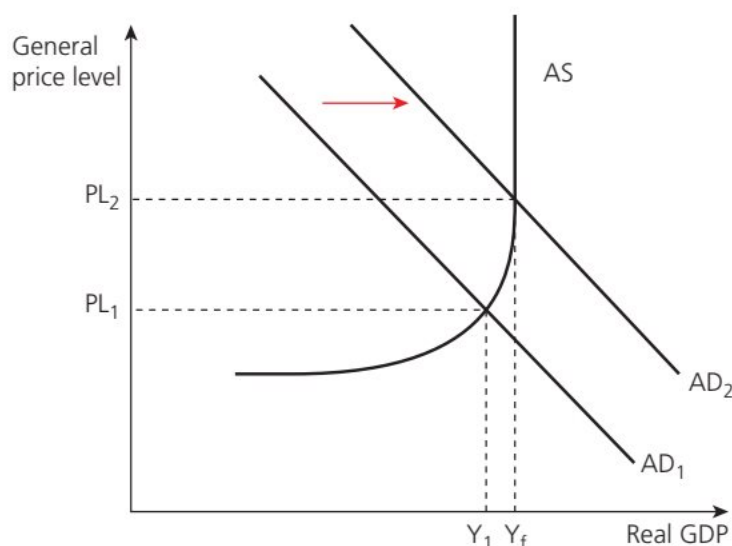
■ **Figure 22.3** The short run and long run Phillips curves

- The **long run Phillips curve** (LRPC) shows that in the long run, there is a single rate of unemployment (the natural rate at U_1) that is consistent with a stable inflation rate. Hence, the LRPC is vertical, that is, there is no trade-off between low inflation and low unemployment.
- The LRPC model shows that any short-term attempts to reduce unemployment beyond its natural rate (NRU) will be ineffective and unsustainable in the long run as the resulting inflation leads to workers expecting and demanding higher nominal wages without any gain in employment levels.
- Most governments strive to reduce the NRU (shifting the LRPC to the left) by creating incentives to work and encouraging more (re)training schemes for the unemployed to improve their occupational mobility.

■ High economic growth and low inflation (AO3)

- Economic growth is usually associated with an increase in the level of aggregate demand in the country. It occurs when there is an increase in any of its components, that is, consumption, investment, government spending and net exports.

- However, as the economy continually grows, the risks associated with inflation become higher, especially as the economy approaches its full employment level of national output.
- If AD rises faster than AS, *demand-pull inflation* occurs. The shift of the AD curve from AD_1 to AD_2 results in an increase in the general price level from PL_1 to PL_2 , which increases real GDP from Y_1 to Y_f (the full employment level of national income).



■ **Figure 22.4** The conflict between low unemployment and low inflation

- *Cost-push inflation* can also occur because high rates of economic growth make it more challenging for firms to attract suitably skilled labour, which can lead to wage inflation (and hence higher prices in general). Therefore, the pursuit of high economic growth can conflict with the objective of low and stable inflation.
- While the pursuit of economic growth can conflict with low inflation, they do not have to be mutually exclusive. Inflation that is monitored and controlled makes conditions more predictable for consumers, producers and the government. Hence, controlled inflation can be positive for economic growth. It is only when inflation rises too quickly and is uncontrolled that it reduces the international competitiveness of the country, which can lead to negative economic growth and job losses.

TOP TIP!

'It is not possible for an economy to simultaneously achieve economic growth and low and stable inflation, as these macroeconomic objectives are conflicting goals.' What is incorrect about this statement?

This can occur when both AD and AS increase, thereby creating more economic growth (real GDP growth) and employment, while allowing prices to even fall.

■ High economic growth and environmental sustainability (AO3)

- Economic growth is generally associated with negative impacts on the natural environment and sustainability. As an economy grows, increased levels of production and consumption can create burdens on the environment, such as air pollution (caused by over-congested roads) and threatening environmental sustainability (through climate change, the loss of ecosystems, land erosion and destruction of water systems).

- Environmental damage and a threat to environmental sustainability can damage the well-being of individuals and societies, thereby harming standards of living for current and future generations.
 - An example is the growing problem of plastic waste in our rivers and oceans, which has devastating impacts on the health and well-being of the population. Hence, the pursuit of high economic growth can conflict with the objective of environmental sustainability.
 - However, economic growth does not always lead to resource depletion or the destruction of the environment, and can be achieved through environmentally sustainable methods, such as the use of green technologies and renewable energy sources. An increasing number of firms and countries strive to take account of the 3 Rs of environmental protection (reducing, reusing and recycling the planet's scarce resources).
- **High economic growth and equity in income distribution (AO3)**
- Rapid economic growth often creates greater disparities in the distribution of income and wealth within the economy, that is, there is a widening gap between the rich and poor.
 - The pursuit and achievement of rapid economic growth does not necessarily solve the socioeconomic problems of income inequalities. Although the country as a whole might experience growth, not everyone will benefit in the same way. Those earning the minimum wage or on zero-hours contracts (no minimum working hours are guaranteed by the employer) are unlikely to earn enough income to build wealth in the same way as high-income earners who have a greater tendency and ability to save.
 - However, economic growth can also lead to greater tax revenues (from taxes imposed on income, profits, expenditure, and the sale of imported products). Hence, economic growth enables the government to use these tax revenues to redistribute income and wealth in the economy. So long as the tax system is progressive and equitable, there is not necessarily a conflict between economic growth and the equitable distribution of income.

PAPER 1 EXAM PRACTICE QUESTION 22.1

Explain why there may be potential conflict between high economic growth and low inflation in an economy.

[10 marks]

PAPER 1 EXAM PRACTICE QUESTION 22.2

Explain why there may be a potential conflict between the macroeconomic objectives of low inflation and low unemployment in the short run.

[10 marks]

Chapter summary

- It is not always possible for a government to simultaneously achieve all of its macroeconomic objectives owing to potential conflicts or trade-offs.
- The macroeconomic objectives of low unemployment and low inflation can conflict because as the economy grows rapidly and employment rises, it is likely that inflationary pressures will occur.
- The short run Phillips curve (SRPC) shows a trade-off between low unemployment and low inflation. Lower unemployment, caused by an increase in AD, creates more spending in the economy so results in higher inflation. (HL only)

- An increase in AD will tend to cause a movement up (to the left) along the short run Phillips curve as unemployment falls while the average price level begins to rise. (HL only)
- Any short-term attempts to reduce unemployment beyond its natural rate will be ineffective and unsustainable in the long run as the resulting inflation leads to workers expecting and demanding higher nominal wages. (HL only)
- The long run Phillips curve (LRPC) shows that unemployment will revert to the natural rate of unemployment (NRU), consistent with a stable inflation rate, so there is no trade-off between low inflation and low unemployment. (HL only)
- High economic growth and low inflation can conflict as macroeconomic objectives because growth is associated with an increase in the level of AD in the country, which can cause demand-pull inflation, especially as the economy approaches the full employment level.
- Economic growth can also conflict with environmental sustainability due to the overuse of the planet's scarce and non-renewable resources.
- Economic growth is not necessarily equitable and often causes greater income inequalities as the rich get richer and the poor get relatively poorer.

■ Relationship between equality and equity (AO2)

- **Equity** is based on the argument that income inequalities (such as wage differentials) are needed to create economic incentives for people to study and work harder. It is about economic fairness or justified inequalities; for example, workers with higher levels of qualifications, skills and experience are paid more than those without these attributes.
- **Equality** refers to the equal distribution of income in the economy, thus minimizing or eliminating any income gap between the rich and poor. It means there is parity in income (earnings) between individuals, so inequalities do not exist.
- Income is a flow concept, such as workers receiving wages and salaries each week or month. Wealth is a stock concept, such as the accumulation of savings, stocks, shares, land and properties.
- In the real world, all economies face inequalities in the distribution of income and wealth due to the natural unbalanced ownership of factors of production. For example, consider the wage differentials between professional sportspeople, doctors and pilots and those earning the national minimum wage.
- In a free market economy, where the government does not intervene in the operations of markets, individuals and firms own different resources so this leads to economic inequalities.

■ The meaning of economic inequality (AO2)

The meaning of economic inequality can be explained in terms of: (1) unequal distribution of income, and (2) unequal distribution of wealth.

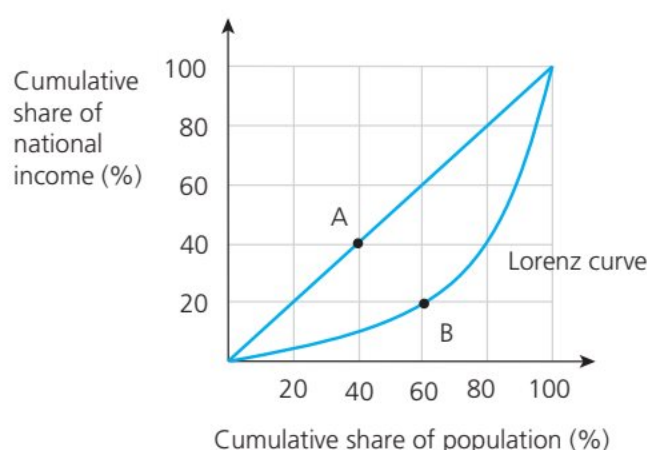
- **Unequal distribution of income** – This exists when a minority of society enjoys a disproportionately high concentration of the nation's income, such as differences between income distribution between geographical regions of a country, males and females, age groups, ethnicities or occupations. Income inequalities also exist between countries.
- **Unequal distribution of wealth** – This refers to imbalances in the spread of a country's wealth among its citizens. Wealth is the stock or accumulation of assets with a monetary value, including land, buildings, capital resources, savings and financial holdings (such as shares, stocks and investment funds).
- In reality, there is a direct link between income and wealth. It is easier for higher income households to accumulate a greater stock of wealth through savings and purchasing assets or investment funds. This can lead to a larger income stream from their assets and investments. By contrast, low-income households are likely to incur debts (negative wealth), which reduce their disposable income as households have to pay interest on their loans. This contributes to the widening wealth gap between the rich and poor.
- A large degree of income inequality tends to have detrimental social, political and economic impacts on the country, for example, greater household debt, political unrest and slower GDP growth. Ultimately, this can lead to higher poverty rates. Hence, most governments strive to achieve greater income equality over time.

■ Measuring economic inequality (AO2, AO4)

- The degree of income equality (or inequality) in an economy can be measured by the relative share of national income earned by given percentages of the population.
- **Quintiles** refer to the statistical method of splitting data into fifths, with each part representing 20 per cent of the population. For example, if the top quintile (20 per cent) of an economy's income earners account for 60 per cent of national income, this would signify huge income inequalities.
- Two interrelated statistical methods are used by economists to measure the degree of inequality in a country: (1) the Lorenz curve, and (2) the Gini coefficient.

■ Lorenz curve

- The **Lorenz curve** is a graphical representation of income or wealth distribution in a country. It shows the proportion of national income or wealth accounted for by each quintile of the population.
- The Lorenz curve is used to show the degree of income or wealth inequality, such as the poorest 20 per cent of income earners accounting for just 5 per cent of the nation's income (or real GDP).



■ **Figure 23.1** The Lorenz curve

- The 45 degree line in Figure 23.1 shows perfect equality in income or wealth distribution. For example, at point A, the first two quintiles account for 40 per cent of the national income.
- The Lorenz curve shows the actual income or wealth distribution in a country. Point B shows that 60 per cent of the population account for just 20 per cent of the nation's income.
- The greater the area between the 45 degree line (showing perfect income equality) and the Lorenz curve, the greater the income inequality in the country.

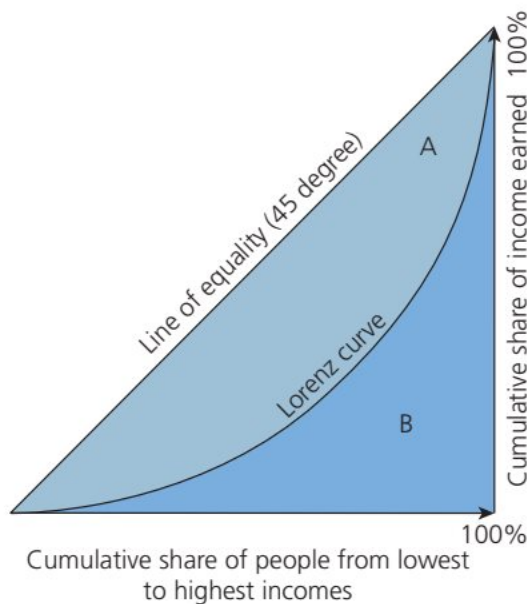
TOP TIP!

HL students need to be able to construct a Lorenz curve from income quintile data.

■ Gini coefficient

- The **Gini coefficient** (or **Gini index**) is a statistical tool that measures income or wealth inequalities in a country. It is the most commonly used measure of inequality.
- The value of the Gini coefficient ranges from 0 (complete equality) to 1 (total inequality). A higher Gini index means greater income or wealth inequalities.
- At one extreme, if one individual accounts for all of the economy's national income, the Lorenz curve would pass the coordinates (0,0), (100,0) and (100,100), leading to a Gini coefficient of 1.
- At the other extreme, there is total equality, as shown by the 45 degree line of perfect equality, if every person in the country has the same income. In such a case, the Gini index would be zero.
- With reference to Figure 23.2, the Gini coefficient is calculated by the ratio of the area between the line of equality and the Lorenz curve (A) and the area under the 45 degree line of complete equality (A + B). This means the Gini coefficient is calculated by using the formula:

$$\text{Gini coefficient} = \frac{A}{A + B}$$



■ **Figure 23.2** The Gini coefficient

- In general, low-income countries and/or those that are highly corrupted have a high Gini coefficient, such as South Africa (0.63) and Namibia (0.591). High-income and transparent countries tend to have a low Gini coefficient, such as Ukraine (0.261), Iceland (0.268) and Slovenia (0.242).

■ **Meaning of poverty (AO2)**

- **Poverty** can be defined as the condition of an individual, household, community or country being extremely poor, that is, not having enough money to meet their basic human needs such as food, clothing, shelter, healthcare and education.
- However, definitions of poverty are relative because poverty varies considerably, depending on the situation or context, and between countries. Feeling poor in Finland or Norway may be different from living in poverty in Sierra Leone, Malawi or Burundi.

- Different degrees of poverty also exist within a country, that is, there are wealthy people living in low-income countries and there are unemployed and homeless people who live in high-income countries.
- Reducing or eliminating poverty is a key economic issue because, apart from humanitarian reasons, poverty represents economic inefficiency. This prevents people and economies from reaching their full potential.
- The causes and consequences of poverty can create a **poverty trap**, that is, the poor become even poorer. For example, low incomes lead to low savings, reduced funds for investments, lower productivity, a decline in GDP, and an overall fall in the quality of life. These consequences increase poverty even further. Hence, eradicating poverty is a key macroeconomic priority of many governments.

■ **Difference between absolute and relative poverty**

- **Absolute poverty** is extreme poverty and refers to those who are unable to access the basic human needs necessary for survival, such as food, clean water, healthcare, shelter and education. It is commonplace in low-income countries.
 - Communities suffering from absolute poverty also experience a high death rate, including infant and child mortality rates, from preventable diseases such as malaria, cholera and water contamination-related diseases. Hence, life expectancy is low.
 - The World Bank defines the absolute poverty as those living on less than \$1.90 a day. This amount is called the **poverty line**. According to the World Bank, around 711 million people live under the poverty line.
- By contrast, **relative poverty** refers to incomes, and hence consumption levels, below the social norm within the country. Those who experience relative poverty are unable to earn the minimum amount of income needed to maintain the average standard of living in the community or country.
 - It is a comparative measure, so relative poverty differs from country to country.
 - Relative poverty can lead to damaging effects on individuals and households, such as social exclusion, homelessness, or even suicide.

■ Measuring poverty (AO2)

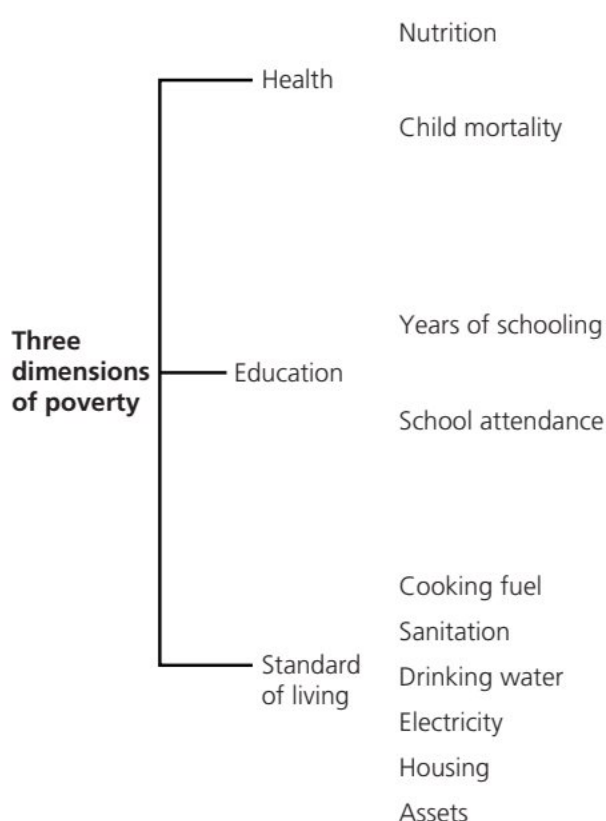
- Owing to the lack of a clear and universally accepted definition of poverty, measuring poverty accurately proves to be challenging.
- Some notable definitions and interpretations of poverty include the following:
 - Adam Smith (1723–90) – Poverty is the inability to afford goods and services necessary to support life and to live a dignified life.
 - Peter Townsend (1928–2009) – Poverty means that individuals lack the resources to allow them to meet the minimal acceptable way of life in the community or country they reside in.
 - Amartya Sen (b.1933) – The Indian economist who won the Nobel Memorial Prize in Economic Sciences (1998) states that poverty is the failure to achieve certain minimum capabilities, which are not fixed over time or across societies.
 - The World Bank – Poverty means that a person's income is below the minimum level deemed necessary to meet basic needs. The World Bank has set the amount of \$1.90 per day as the international poverty line since 2015.
 - The United Nations – Poverty is a denial of choices and opportunities as well as a violation of human dignity. It means insecurity, powerlessness and exclusion of individuals, households and communities.
 - Sir Tony Atkinson (1944–2017) – Poverty has various manifestations, including hunger and malnutrition, ill health, limited access to education and healthcare services, homelessness and inadequate housing, unsafe environments, and social discrimination and exclusion.
- However, achieving consensus on one single indicator to measure poverty has been continually contested by the likes of the World Bank, the United Nations, economists and policymakers.
- As a result of the differences in the interpretations and understanding of the multidimensional aspects of poverty, economists and policymakers use single indicators and composite indicators to measure poverty.

■ Single indicators of measuring poverty

Single indicators of measuring poverty include: (1) international poverty lines, and (2) minimum income standards.

- **International poverty lines** – An **international poverty line** is the minimum threshold level of income that a person in a given country must have in order to meet the basic needs necessary for human survival. Below this poverty line, people are considered to be living in poverty. For example, the World Bank defines this as those living on \$1.90 or less per day.
 - However, international poverty lines ignore regional disparities and differences in the cost of living. This makes it difficult to determine a minimum income required to sustain life.
 - According to the World Bank, the process of determining an international poverty line starts with estimating the **national poverty line** – the level of income below which individual citizens cannot meet their basic minimum needs in terms of shelter, nutritional level and clothing.

- **Minimum income standards** – The **Minimum Income Standard** (MIS) research method determines the lowest amount of income needed for what members of the public deem to be an acceptable standard of living in the country. It enables individuals and households to be able to live in a socially acceptable way. Adjustments can be made to account for regional variations such as the cost of housing in rural and remote areas of the country.
- **Composite indicators of measuring poverty**
 - Composite indicators use a range of factors (or dimensions) to calculate the degree of poverty in a community. Although they are more difficult to measure, composite indicators consider both breadth and depth of poverty within a country.
 - The UN's Sustainable Development Goals raise the need to consider a multidimensional approach to measuring global poverty that goes beyond the traditional use of measuring poverty by single indicators such as national income.
 - The **Multidimensional Poverty Index** (MPI) is a composite measure that identifies numerous deficiencies of individuals and households in reference to their level of health, education and standards of living.
 - The MPI considers multiple factors that influence or deprive people of their quality of life, ranging from sanitation and the composition of household flooring (dirt, sand or dung) to child mortality rates and the average years of schooling.
 - According to the UNDP's MPI data, more than a fifth of the world's population suffer from severe multidimensional deprivations. People fall into the category of being multidimensionally poor if they face hardship in at least one third of the 10 weighted indicators in the MPI (see Figure 23.3).
 - The MPI helps policymakers to monitor Target 1.2 of the UN's Sustainable Development Goals (SDG), which is to reduce at least by half the proportion of adults and children of all ages living in poverty in all its dimensions.



■ **Figure 23.3** The Multidimensional Poverty Index

■ Difficulties in measuring poverty (AO2)

- Economists have tended to use national income per capita as the key indicator of measuring standards of living and poverty because there is a positive correlation between higher GDP per capita and higher human development indicators. For example, in high-income countries there are significantly lower rates of people living below the national and international poverty line.
- However, a high GDP per capita does not guarantee that all people in the country can escape poverty. Inequalities and relative poverty still exist, even in high-income countries.
- The United Nations' Sustainable Development Goal 1 (No poverty) and Goal 2 (No hunger) directly deal with multidimensional aspects of poverty. To facilitate this, it is essential to measure the magnitude of poverty to see if the right actions are taken towards helping the poor and to evaluate the social and economic impacts of these initiatives.

- However, poverty is a multidimensional issue including non-monetary indicators of poverty such as access to education, healthcare, sanitation, clean water and power. Therefore, a single indicator (such as GDP per capita) does not reflect or address the multiple complexities of poverty.
- Therefore, it is difficult to measure poverty accurately in a meaningful way owing to its multidimensional nature. For example, there is much debate regarding how the national poverty line of low-income countries translates to the international poverty line for all nations.
- There are also limitations in the use of purchasing power parity (PPP) figures to compare international measures of poverty. This is because PPP values are likely to vary based on location (such as higher living costs in central business districts) and time (due to exchange rates fluctuations). This also makes it more challenging to measure and compare both absolute and relative poverty against an international poverty line.

■ Causes of economic inequality and poverty (AO2)

The main causes of economic inequality and poverty are: (1) inequality of opportunity, (2) different levels of resource ownership, (3) different levels of human capital, (4) discrimination, (5) unequal status and power, (6) government tax and benefits policies, (7) globalization and technological change, and (8) market-based supply-side policies.

- **Inequality of opportunity** – This means that some individuals and societies are deprived of economic prosperity. For example, some countries are able to achieve social, political, environmental and economic improvements while others have not been able to do so. Economists believe that inequality of opportunity, as opposed to inequality that results from personal effort, contributes negatively to economic growth and development.
- **Different levels of resource ownership** – The lack of natural resources and/or the poor management of these scarce resources will generally reduce a country's potential output and net export earnings. This will result in a fall in the level of consumption and investment expenditure in the economy, resulting in greater economic inequalities and poverty.
- **Different levels of human capital** – Human capital is the stock or accumulation of skills, knowledge and experiences possessed by individuals or the workforce of a country. The lack of sufficient education, training and healthcare leads to greater inequalities and poverty in society. Without the necessary knowledge and skills base, the workforce will be far less productive, so real GDP will be significantly lower than its potential.
- **Discrimination (gender, race and others)** – Discrimination refers to any form of social prejudice and exclusion, that is, communities do not accept or respect groups of people based on differences in gender, race, ethnicity, religion, political or ideological views, income level, or any other socioeconomic factor. It often causes hostility and conflict, which creates an environment less conducive for economic growth and development. Discrimination, in all its forms, is inefficient and detrimental to economic prosperity and well-being.
- **Unequal status and power** – The concepts of status and power, which are associated with money and wealth, suggest that a particular group is more privileged or entitled than others. Status and power are exercised for the interest of the wealthy minority at the expense of the interests and future of the majority of the population. Marginalized groups in society are exploited (due to discrimination) and deprived of basic social and economic opportunities, all of which deepen the level of poverty in the economy.

- **Government tax and benefits policies** – Governments can influence the level of economic prosperity in the country by changing tax and benefits policies. Tax revenues can be used to fund government expenditure, such as spending on social welfare programmes and for long-term investments to improve infrastructure and human capital. Such policies can significantly reduce inequalities in society.
- **Globalization and technological change** – Globalization is an all-encompassing concept of cultural, political, social, technological and economic exchange. It is about the growing interdependence and integration of the world's economies. However, it has been criticized for widening inequalities across the world. For example, globalization has been blamed for causing the collapse of many local businesses as they are unable to compete with large foreign multinational companies. This causes greater poverty in many low-income countries.
- **Market-based supply-side policies** – Market-based supply-side policies focus on freeing up markets and improving incentives to work and invest, thereby increasing the potential output of the economy. However, such policies can create more inequalities and poverty as outlined in the following examples:
 - *Deregulation* – the reduction or elimination of institutional powers intended to stimulate more competition in the economy can cause domestic businesses to collapse, thereby leading to mass job losses (unemployment) and greater inequalities in the country.
 - *Privatization* – the transfer of ownership of property or businesses from the public sector to the private sector can also lead to unemployment and inequality in wealth distribution. This is because privatized firms are driven by profits, so may cut labour costs in order to make efficiency gains.
 - *Trade liberalization* – freer international trade raises economic efficiency, but often leads to a wage gap because of the greater opportunities presented to highly skilled workers. The subsequent rise in wage differentials causes a widening of income inequalities.
 - *Anti-monopoly regulation* – laws against anti-competitive behaviours and the abuse of monopoly power are used to encourage competition. However, governments in low-income countries are not always able to prevent the exploitative behaviour of large foreign multinational companies, which leads to greater inequalities in these countries.

■ The impact of income and wealth inequality (AO3)

The impact of income and wealth inequalities can be examined with reference to: (1) economic growth, (2) standards of living, and (3) social stability.

- **The impact of income and wealth inequality on economic growth** – Research suggests an increase in income and wealth inequality can create incentives to work and invest. This can lead to improved economic prosperity in the long run. However, an increase in income and wealth inequality might dampen growth prospects in a country due to lower morale and greater social and political tensions.
- **The impact of income and wealth inequality on standards of living** – Economists tend to use real GDP per capita to measure standards of living in an economy. However, other interrelated factors also determine the degree of economic well-being, such as the extent to which there is political and social stability, religious freedoms, quality of the environment, safety and security, life expectancy, and the freedom of speech. Wealthier members of society will be able to afford a disproportionately larger amount on education and healthcare, which tend to improve their standards of living over time.

- **The impact of income and wealth inequality on social stability** – There is a positive correlation between an equal society and the ability of its people to live harmoniously. By contrast, the most unequal countries are characterized by political and social unrest, which negatively impacts on the economy. This can even lead to years of social altercations, public protests or riots, communal disharmony and criminal activities.
- **The role of taxation in reducing poverty, income and wealth inequalities (AO3, AO4)**
 - Taxation is a key policy that governments use to tackle income and wealth inequalities. However, while taxation provides necessary finance to fund government expenditure and to redistribute income and wealth, it puts additional pressure on taxpayers and can cause disincentives to work.
 - In *The Wealth of Nations* (1776), Adam Smith indicated that the tax structure of a country must have the following characteristics in order to be effective:
 - Certainty – taxpayers must know what and when they need to pay.
 - Convenience – procedures and processes for paying taxes should be uncomplicated.
 - Economic – taxes should be cost-effective for the authorities to collect.
 - Equitable – taxes should be levied according to the individual's ability to pay.

Policy measures used to reduce the level of inequalities in the economy, funded by tax revenues, include:

- The government can directly provide socially desirable goods and services, making these available to everyone, such as the provision of public education and healthcare services.
- Alternatively, the government can subsidize firms to provide socially desirable goods and services (public goods and merit goods).
- The provision of essential infrastructure (such as clean water supplies) helps to promote equity to low-income households and to help eradicate absolute poverty.
- Transfer payments can be used to reduce income and wealth inequalities by making payments to low-income individuals and households without any corresponding exchange or change in national output, for example state pensions and unemployment benefits.

■ **Progressive, regressive and proportional taxes (AO3, AO4)**

Taxes can be categorized as: (1) progressive, (2) regressive, or (3) proportional. These taxes have varying impacts on the redistribution of income and wealth.

- **Progressive taxes** – A higher percentage tax is imposed on higher income earnings, that is, the more income earned, the higher the proportion of income paid in taxes. Progressive taxes are used to address inequalities by redistributing income and wealth from the rich to improve the economic well-being of the poor.
- **Regressive taxes** – Those with a higher ability to pay are charged a lower rate of tax, that is, the wealthier the individual, the lower the tax rate paid as a percentage of their income. For example, although a high-income earner pays the same absolute amount of tobacco or sugar tax as a less wealthy person, the value of the tax paid is a smaller proportion of the wealthier person's income.
- **Proportional taxes** – A flat rate tax charges everyone the same percentage rate of tax, irrespective of their level of income, wealth or profits. For example, Denmark imposes a standard rate of 25 per cent GST (goods and services tax).

TOP TIP!

'A progressive tax means that workers pay more in taxes as their income level rises.' Why is this statement incorrect?

The above statement is true for proportional taxes as well as for progressive taxes, that is, the more a person earns, the more tax is paid. More accurately, progressive taxes impose a larger marginal tax rate as incomes rise, that is, the more a person earns, the greater the average rate of tax paid as a percentage of the individual's total income.

■ Average and marginal tax rates (A03, A04) (HL only)

- The **marginal tax rate** (MTR) refers to the percentage of tax paid on the last dollar of an individual's income, that is, the change in tax rate paid from a given change in income. It is calculated by using the formula $\Delta T \div \Delta Y$, where T is the tax paid and Y is income.
- The **average rate of tax** refers to the total amount of tax paid as a proportion of income earned, that is, $T \div Y$.
- Under a progressive tax system, the marginal tax rate exceeds the average tax rate ($MTR > ATR$) in order to help redistribute income and wealth in the economy. By contrast, in a regressive tax system the average tax rate exceeds the marginal tax rate ($ATR > MTR$).

■ Direct taxes (A03, A04)

- The use of direct and indirect taxes can also be used to reduce poverty and inequalities in income and wealth.
- A **direct tax** is a levy imposed on income rather than on expenditure. It is imposed directly on the person or firm liable to pay the tax.
- Direct taxes that can be used to reduce the impact of poverty and inequalities include taxes imposed on: (1) personal income, (2) corporate income, and (3) wealth.
 - **Personal income taxes** – The provision of public services, healthcare and education needs to be funded by tax revenues. However, excessive tax rates can cause disincentives in labour markets and deters domestic and foreign businesses from investing in the economy.
 - **Corporate income taxes** – These are direct taxes imposed on the annual profits of private sector businesses. Corporate income taxes help to redistribute income and wealth in a country, but excessive tax rates will cause a lack of incentive for firms to spend on investments.
 - **Wealth taxes** – These direct taxes are levied on the market value of assets owned by an individual, household or firm, for example, inheritance taxes.

■ Indirect taxes (A03, A04)

- In addition to the use of direct taxes imposed on incomes, profits and wealth, a government can impose indirect taxes to reduce poverty and inequalities in income and wealth.
- An **indirect tax** is a tax on expenditure, such as Goods and Services Tax (GST), customs duties (on imported products), and Pigouvian taxes (imposed on demerit goods that create negative externalities).
- As wealthier individuals and households spend more money, they also pay a greater amount of indirect taxes, which helps to redistribute income and wealth in

the country. However, indirect taxes are often criticized for being regressive, for example, a low-income individual pays the same amount of tax as a person with higher income for the purchase of cigarettes, alcohol or petrol. This can further widen inequalities in income and wealth.

■ Further policies to reduce poverty, income and wealth inequality (AO3)

Apart from using taxation policies, other interrelated policies can be used to reduce poverty, and income and wealth inequalities. These measures include: (1) policies to reduce inequalities of opportunities and investment in human capital, (2) transfer payments, (3) targeted spending on goods and services, (4) universal basic income, (5) policies to reduce discrimination, and (6) minimum wages.

- **Policies to reduce inequalities of opportunities/investment in human capital** – Giving tax benefits for people on low incomes and/or those with young children reduces the amount of tax these individuals pay; some households may even qualify for a tax refund. Similarly, investments in education and training improve the country's human capital and thereby contribute to reducing or removing inequalities in economic opportunities.
- **Transfer payments** – These are sums of money paid from the government to individuals for which there is no corresponding output or economic activity, such as unemployment benefits, disability allowances, student loans, pension payments for elderly people who have retired, and housing allowances to support low-income families. However, the use of transfer payments is costly and can contribute to budget deficits. There are also opportunity costs in the direct provision of goods and services aimed at redistributing income and wealth.
- **Targeted spending on goods and services** – Governments often budget for targeted spending on specific goods and services in the country in order to reach the individuals and groups who need the support, for example expenditure on primary level education aimed at attaining full child literacy. Another example is conditional cash transfers (CCTs), which give money to low-income families on the condition that they comply with requirements to break the poverty cycle through the development of human capital, such as regular visits to a healthcare facility and regular school attendance by children.
- **Universal basic income (UBI)** – In many societies, the lack of employment opportunities for marginalized members of society (such as uneducated and unskilled workers) is a precursor of poverty and income inequality. To prevent this from happening, governments can intervene by offering everyone in the country a UBI – the guaranteed minimum income that each individual in the country receives per time period.
- **Policies to reduce discrimination** – Social exclusion based on socioeconomic differences (such as gender, ethnicity, race, religion, disability or sexual orientation) is a major cause of poverty and inequalities in income and wealth. Governments can tackle these issues by developing and implementing anti-discrimination laws and policies, resulting in all forms of discrimination being illegal.
- **Minimum wages** – This refers to the lowest amount of pay that an employer is required to compensate workers during a given time period, such as per hour. This creates greater incentives to work, which would mean less spending on transfer payments by the government over time. But setting a minimum wage for an entire country can be challenging, especially if costs of living differ significantly in

different parts of the nation. However, imposing minimum wages can result in higher labour costs and even unemployment, at least in the short run.

TOP TIP!

When making or evaluating policy recommendations to reduce income and wealth inequalities, remember that every government decision has an opportunity cost. For example, redistributing income and wealth by using progressive taxes involves administrative costs to the government. Overly progressive taxes can also create disincentives to work and deter long-term investments.

PAPER 1 EXAM PRACTICE QUESTION 23.1

Explain how the Lorenz curve and the Gini coefficient are used to measure income distribution in a country.

[10 marks]

PAPER 1 EXAM PRACTICE QUESTION 23.2

Using real-world examples, evaluate the view that government tax policies and welfare benefits are the most effective ways of addressing poverty and inequalities in income and wealth in an economy.

[15 marks]

PAPER 3 EXAM PRACTICE QUESTION 23.3 (HL ONLY)

Study the data below and answer the questions that follow.

Annual income (\$)	Tax paid (\$)		
	Tax A	Tax B	Tax C
10,000	1,000	1,000	1,000
15,000	1,800	1,500	1,000
20,000	3,000	2,000	1,000
25,000	4,500	2,500	1,000

- a Identify the tax (A, B or C) that is progressive. [1 mark]
- b Identify the tax (A, B or C) that is proportional. [1 mark]
- c Distinguish between a regressive tax and a progressive tax. [2 marks]

PAPER 3 EXAM PRACTICE QUESTION 23.4 (HL ONLY)

Suppose a government taxes an individual \$5,800 on earnings of \$58,000 a year and charges another person \$1,800 on earnings of \$18,000 a year. Explain what type of tax system the country uses.

[2 marks]

PAPER 3 EXAM PRACTICE QUESTION 23.5 (HL ONLY)

Progressive tax rates in Country X are 10% (for those who earn between \$10,001 and \$40,000 per year) and 20% (for those who earn more than \$40,000 per year).

- a Complete the table below by calculating the total amount of tax paid by an individual who earns \$60,000 during the year. [4 marks]

Income level (\$)	Tax rate	
	(%)	Amount of tax paid (\$)
Up to \$10,000	0%	
\$10,001–\$40,000	10%	
\$40,001 and above	20%	
Total tax paid:		

- b Calculate the average tax rate paid by the individual above. [2 marks]

PAPER 3 EXAM PRACTICE QUESTION 23.6 (HL ONLY)

Use the table below to answer the following questions for an individual who earns \$50,000 per year.

Income tier	Tax rate (%)
First \$10,000	0
Next \$20,000	10
Next \$20,000	20
Thereafter	25

- a Identify the marginal rate of income tax. [1 mark]
- b Calculate the total amount of tax paid by the individual. [2 marks]
- c Calculate the average tax rate for the individual. [2 marks]
- d Calculate the average tax rate for another individual who earns \$100,000 during the year and comment on your result. [4 marks]

TOP TIP!

The eight causes of economic inequality and poverty can be remembered by using the acronym **HOTDOGS**, namely the differences in: (1) **H**uman capital, **O**pportunities (inequalities), **T**axes and benefits, **D**iscrimination (gender, race, and others), **O**wnership of resources (factors of production), **G**lobalization and technological change, and **S**upply-side policies (market-based).

Chapter summary

- Equality means there is parity in incomes (earnings) between individuals, that is, everyone is paid or receives the same so no inequalities exist.
- Equity means economic fairness; for example, individuals with higher levels of qualifications, skills and employment experience are paid more. It is about the existence of justified inequalities.
- Individuals and societies face inequalities in the distribution of income and wealth due to the naturally unequal allocation and ownership of factors of production in a free market economy. Inequalities exist within and between countries and geographical region as well as between males and females, age groups, ethnicities and occupations (professions).
- The meaning of economic inequality can be expressed in terms of the unequal distribution of income (a flow concept) and the unequal distribution of wealth (a stock concept).
- The degree of income equality (or inequality) can be measured by the relative share of national income (real GDP) earned by given proportion (quintile) of the population.
- The Lorenz curve shows the degree of income inequality in a country. The Gini coefficient is a numerical representation of a country's Lorenz curve, enabling governments to take appropriate policy measures to tackle poverty and inequalities in income and wealth.
- Poverty refers to the state of an individual, household, community or country being extremely poor, that is, not having enough to meet their basic human needs to survive.
 - Absolute poverty is the lack of access to the basic goods and services needed for survival, such as food, shelter, clean water, sanitation, healthcare and primary education.
 - Relative poverty is determined by examining the percentage of the population who earn less than a predetermined proportion of the median income.

- Single indicators, such as the International Poverty Line (IPL) or the Minimum Income Standard (MIS), and composite indicators, such as the Multidimensional Poverty Index (MPI), are used to measure poverty.
- The multidimensional aspects of poverty make it difficult to measure in an accurate, objective and meaningful way.
- The causes of economic inequality and poverty are: (1) inequality of opportunity, (2) different levels of resource ownership, (3) different levels of human capital, (4) discrimination (such as gender and race), (5) unequal status and power, (6) government tax and benefits policies, (7) globalization and technological change, and (8) the consequences of market-based supply-side policies.
- Income and wealth inequalities tend to have harmful effects on: (1) economic growth, (2) standards of living, and (3) social stability.
- Taxation is a commonly used policy measure to redistribute of income and wealth in the economy. Taxes can be categorized as: (1) progressive, (2) regressive, (3) proportional, (4) direct, and (5) indirect.
 - Progressive taxes charge a higher rate of tax as an individual's income rises, that is, those who earn more pay a greater proportion of their income in tax.
 - Regressive taxes charge a greater proportion of tax on lower income earners, for example, sales taxes, such as Value Added Tax (VAT) and Goods and Services Tax (GST). Such taxes account for a greater percentage of tax paid by low-income earners.
 - Proportional taxes charge the same flat rate tax, irrespective of how much an individual earns. While more tax is paid in absolute terms as an individual's income rises, the percentage tax paid is fixed.
 - Direct taxes are levied on income, rather than on expenditure, such as personal income tax, corporate taxes (on company profits) and wealth taxes.
 - Indirect taxes are levied on expenditure, such as a Goods and Services Tax (GST) or customs duties (on imported products).
- The average tax rate (ATR) is the amount of tax paid compared to the value of income earned, that is, the total tax paid divided by the total income for an individual, or $T \div Y$. (HL only)
- The marginal tax rate (MTR) is the percentage of tax paid on the last dollar of an individual's income, that is, the tax rate paid from a given change in income. (HL only)
- Other policies used by governments to reduce poverty and inequalities in income and wealth include: (1) policies to reduce inequalities of opportunities/investments in human capital, (2) transfer payments, (3) targeted spending on goods and services, (4) universal basic income, (5) policies to reduce discrimination, and (6) minimum wages.

Demand management (demand-side policies) – monetary policy

■ Monetary policy (AO1)

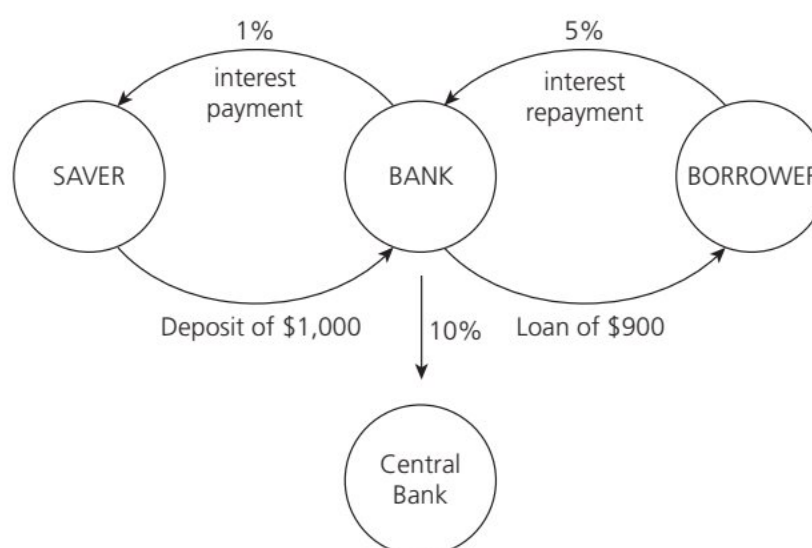
- **Monetary policy** refers to the government's control and use of interest rates and the money supply in order to influence the level of economic activity.
- Monetary policy is a **demand-side policy** as changes in interest rates and/or the money supply are targeted at manipulating the level of aggregate demand (AD) in order to achieve the government's macroeconomic goals.
- In practice, monetary policy is overseen by the nation's **central bank**, the designated monetary authority for overseeing the country's banking system including the money supply and interest rates. If the economy is in an economic boom or is expected to grow rapidly, the central bank will tend to increase interest rates, and vice versa.
- **Interest rates** are the price of money. Interest rates can refer to the price of borrowing money (the interest rate charged to borrowers) or the return from saving money (the interest rate paid to savers).
- The **money supply** refers to the entire quantity of money circulating in an economy, including bank notes and coins, loans and savings deposits at financial institutions such as commercial banks.

■ Goals of monetary policy (AO2)

The goals or objectives of monetary policy include: (1) inflation targeting, that is, achieving a low and stable rate of inflation, (2) low unemployment, (3) reducing fluctuations in the business cycle, (4) promoting a stable economic environment for long-term growth, and (5) harmonizing the external balance, that is, the value of a country's exports is balanced by the value of its imports.

- **Low and stable rate of inflation (inflation targeting)** – Monetary policy can be used to help achieve a specific rate of inflation in order to facilitate sustainable economic growth and employment. This is because price stability will enhance consumer and business confidence in the economy.
- **Low unemployment** – Monetary policy can be used to help achieve low unemployment by reducing interest rates. In theory, this should stimulate economic activity by increasing AD because lower interest rates cut borrowing costs for households and firms, thereby helping to increase consumption and investment. Hence, this should reduce the unemployment rate as real GDP increases.
- **Reduce business cycle fluctuations** – Lower interest rates can be used during a recession to help boost AD. By contrast, if the economy is booming, higher interest rates can be used to reduce the impact of inflationary pressures, especially if the country is near to or at the full employment level of national income.
- **Promote a stable economic environment for long-term growth** – Economic stability, through the use of monetary policies, makes it easier to achieve macroeconomic objectives, such as stable prices, lower unemployment and sustainable economic growth. Consumers and firms favour a climate of certainty, which helps to encourage investments in physical and human capital for long-term growth of the economy.

- **External balance** – This refers to the value of a country's export earnings being equal to the value of its import expenditure. Interest rates can be used to influence the exchange rate, thereby affecting the value of a country's imports and exports. For example:
 - Lower interest rates tend to make a currency less attractive for foreign buyers (as the rate of return is lower), thereby reducing the exchange rate.
 - This will tend to increase the demand for exports.
 - However, if export earnings (X) exceed import expenditure (M), then this leads to inflationary pressures in the economy as more money flows into the domestic economy.
 - By contrast, if $M > X$ the country will experience a negative external balance, with a net outflow of money from the economy.
 - As with any individual, countries cannot spend more than they earn in the long run. So, an external balance is vital for sustainable economic growth and development.
- **The process of money creation by commercial banks (HL only) (AO2)**
 - **Credit creation** is the process by which commercial banks create money from deposits of savers and use these funds as loans to borrowers.
 - Savers deposit money in commercial banks and gain a rate of interest as their return (1 per cent in Figure 24.1). Banks will then provide loans from the savings deposited to borrowers and charge a higher interest rate (of 5 per cent in this example).
 - In Figure 24.1, an individual deposits \$1,000 saving into a commercial bank. With this, 10 per cent is retained at the central bank, allowing the commercial bank to lend up to 90 per cent.
 - Borrowers use this money for consumption, thereby contributing \$900 of spending in the economy. The firm receiving this spending then deposits the money in a bank, so there is an increase of \$900 in the money supply.
 - With this extra \$900 deposited by the firm, the bank again retains only 10 per cent and lends the remaining \$810 to another borrower, and so the process continues.
 - Hence, deposits generate loans and come back into the banks as a form of further deposits, thereby increasing the money supply.



■ **Figure 24.1** Credit creation: the process of money creation

■ Tools of monetary policy (HL only) (AO2)

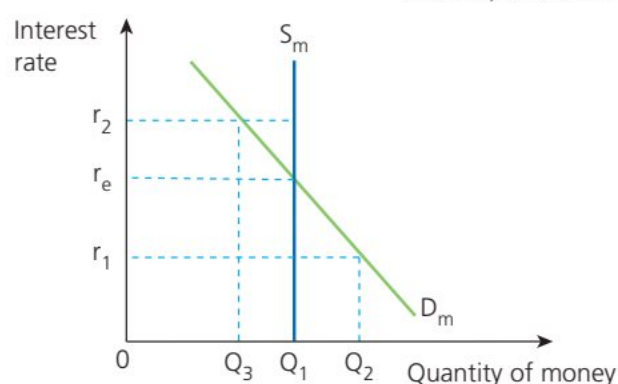
There are four main tools of monetary policy: (1) open market operations, (2) minimum reserve requirements, (3) changes in the central bank minimum lending rate, and (4) quantitative easing. These are methods used by a central bank or central monetary authority to influence the money supply or interest rates.

- **Open market operations (OMO)** – This refers to the buying and selling of government securities by a country's central bank. Government securities are a type of public sector debt, used to finance the government's operations.
 - When the central bank wants the money supply to fall (in order to slow inflation and/or stabilize economic growth), it can sell government securities (bonds) to banks or other investors.
 - Higher interest rates (returns paid to purchasers of the securities) attract buyers or investors.
 - Hence, this is an example of contractionary monetary policy as it withdraws money from the economy due to buyers of government securities opting not to spend this money on consumption or investment.
 - The opposite is true if the government reduces interest rates, thereby reducing the attractiveness of holding government bonds. This injects money into the economy to stimulate economic activity.
- **Minimum reserve requirements (MRR)** – The MRR is the lowest amount that commercial banks are required to keep as reserves at the central bank, thereby limiting how much they can lend and how much credit they can create.
 - The MRR acts to ensure that commercial banks have enough cash for their daily transactions, given that most customers will not want to withdraw all of their cash in any given day.
 - The **money multiplier** is used to calculate by how much an initial deposit (savings at a commercial bank) increases the money supply. The money multiplier = $1 \div \text{MRR}$.
 - There is an inverse relationship between the MRR and the money multiplier, that is, the higher the MRR, the lower the money multiplier and therefore the lower the amount of money that is created by commercial banks.
 - Hence, raising the MRR is a form of contractionary monetary policy to limit growth in the money supply in order to combat inflationary pressures.
 - By contrast, the central bank can reduce the MRR as a form of expansionary monetary policy if it wants to inject liquidity (money) into the economy. This increases the money supply, and hence reduces interest rates, in order to stimulate growth and employment.
- **Changes in the central bank minimum lending rate (MLR)** – The MLR is the official interest rate charged by the central bank on loans to commercial banks. The MLR is also known as the *base rate*, *discount rate* and *refinancing rate*.
 - The MLR influences all other interest rates, such as those charged on credit transactions, bank loans and mortgages.
 - If the government decides to use contractionary monetary policy (to combat inflationary pressures), it can raise the MLR. This causes financial institutions to also increase their lending rates to maintain profit margins.

- By contrast, a lower base rate means that commercial banks and other financial institutions will lower their refinancing rates and reduce the interest rate paid to savers. Therefore, AD is likely to increase.
- **Quantitative easing (QE)** – This is a form of monetary policy that injects money directly into the economy (increasing the money supply) via the central bank purchasing corporate bonds.
 - The institutions selling these bonds to the government (such as commercial banks or insurance companies) then have newly created money in their accounts. This boosts the money supply and promotes lending (and hence investment and consumption expenditures in the economy).
 - As the supply of money in the economy increases, interest rates will fall, so this reduces the value of real debts of households and firms with existing debts. Therefore, QE should increase consumer and business confidence, and increase aggregate demand.
 - Hence in theory, higher lending through the use of QE should help to increase AD and promote economic growth.

■ Demand and supply of money (HL only) (AO2, AO4)

- The equilibrium interest rate is determined by the intersection of the demand for and supply of money (see Figure 24.2).
- The **demand for money** (D_m) refers to the desire to hold money (rather than to save it) in order to pay for consumption and current expenditure.
- The **supply of money** (S_m) refers to the total amount of money circulating in the economy at any point in time. It includes bank notes and coins, bank deposits (savings), loans and credit.
- Interest rates tend to rise when the quantity of money demanded exceeds the quantity supplied ($D_m > S_m$), and vice versa. A change in either the demand for money or the supply of money will change the equilibrium interest rate.
- The opportunity cost of holding money varies directly with the level of interest rates, that is, a fall in interest rates will reduce the opportunity cost of holding money.



■ **Figure 24.2** The demand for and supply of money

- The supply of money curve (S_m) is vertical at Q_1 as the money supply is fixed by the central bank at any one point in time. At interest rates below the equilibrium, there is excess demand for money, for example, at r_1 , excess demand is shown by the distance $Q_2 - Q_1$. Hence, there will be a tendency for the price of money (the interest rate) to rise towards its equilibrium at r_e .
- By contrast, if interest rates are higher than the equilibrium, more money is available than people wish to hold. Hence, at r_2 , excess supply of money is $Q_1 - Q_3$. In this case, the interest rate will tend to fall towards its equilibrium.

TOP TIP!

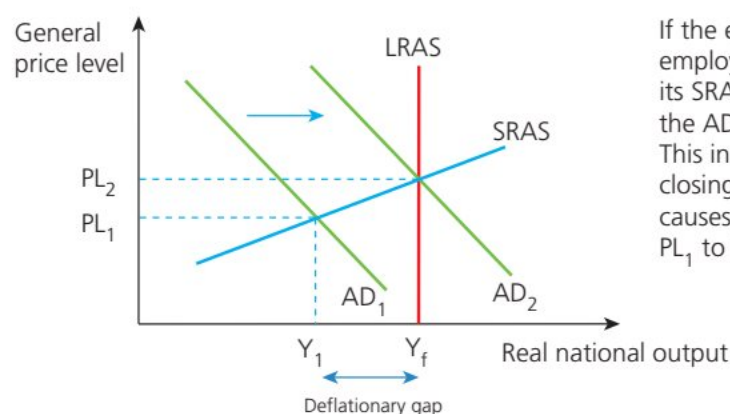
In the real world, there is no single equilibrium interest 'rate' but a structure of different interest rates. This is because there are separate money markets for different kinds of loans, such as short-term bank overdrafts, credit card debts and long-term mortgages, all of which charge different rates of interest. Borrowers also have different levels of risk; for example, lending to governments and large multinational companies tends to be less risky than lending to private individuals. The riskier the client in terms of their credit rating, the higher the interest rate will tend to be.

■ Real versus nominal interest rates (AO2)

- The **nominal interest rate** is the actual rate that is agreed between the lender, such as a commercial bank, and the borrower. It is the rate that borrowers pay on their loans or the return that savers receive on their deposits.
- However, of greater relevance to economists is the **real interest rate** to borrowers and savers. The real interest rate accounts for the impact of inflation on the cost of debts to borrowers and the return to savers.
- The formula for calculating the real interest rate is: Nominal interest rate – Inflation rate. For example, if a bank rewards savers with a nominal interest rate of 1 per cent per year, but inflation is 2.5 per cent during this time, the real return is only –1.5 per cent (that is, inflation has depleted the real return on the value of savings). In this case, the real interest rate is actually negative, so in real terms any money saved has *fallen* in value.

■ Expansionary and contractionary monetary policies (AO3, AO4)

- Expansionary and contractionary monetary policies can be used by a government to close deflationary and inflationary gaps, respectively.
- In the case of **expansionary monetary policy**, lower interest rates are used to shift the AD curve to the right (see Figure 24.3), thereby closing a deflationary (or recessionary) gap. This is because:
 - Consumption (C), investment (I) and government expenditure (G) are likely to rise due to the cheaper borrowing costs. Households and firms with existing loans will also benefit from lower interest repayments.
 - Net exports are likely to increase as lower interest rates tend to cause a fall in the exchange rate. This makes exports relatively attractive to foreign buyers, and imports more expensive for domestic households and firms.



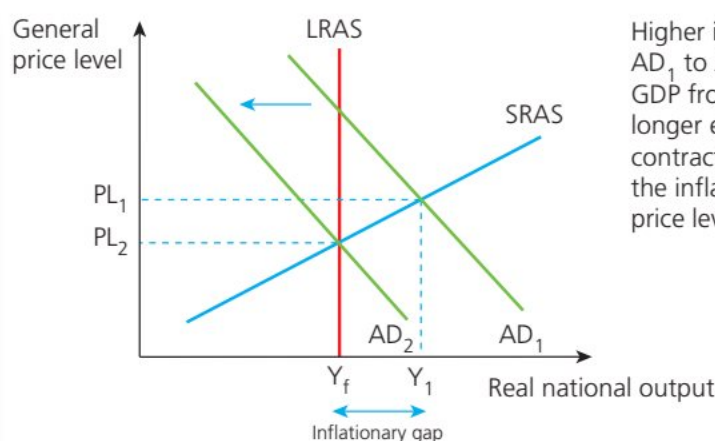
If the economy operates at less than the full employment level (Y_f), it is operating along its SRAS curve. A cut in interest rates shifts the AD curve from AD_1 to AD_2 , ceteris paribus. This increases real GDP from Y_1 to Y_f , thereby closing the deflationary gap. However, this causes a rise in the average price level from PL_1 to PL_2 .

■ **Figure 24.3** Expansionary monetary policy and the deflationary gap

- By contrast, the use of **contractionary monetary policy** can help to close an inflationary gap. An increase in interest rates tends to reduce consumption and investment in the economy, thereby reducing aggregate demand and real GDP (see Figure 24.4).

TOP TIP!

Each policy decision has its limitations and opportunity costs. For example, expansionary monetary policies can be used to boost economic growth but can cause inflationary pressures in the economy.



■ **Figure 24.4** Contractionary monetary policy and the inflationary gap

■ Effectiveness of monetary policy (AO3)

- As with any economic policy, the effectiveness of monetary policy can be evaluated by the extent to which it helps to achieve macroeconomic objectives, such as economic growth, low unemployment, and a low and stable rate of inflation.
- Constraints on monetary policy include: (1) the limited scope of reducing interest rates when they are close to zero, and (2) low consumer and business confidence.
 - **Limited scope of reducing interest rates, when close to zero** – Events such as the global financial crisis of 2008 and the global coronavirus pandemic that started in 2019 have shown that setting interest rates at historical lows does not always get economies out of recession. However, there is less scope to reduce interest rates further (to influence economic activity) when they are already close to zero.
 - **Low consumer and business confidence** – A change in interest rates only works if consumption and investment are not entirely dependent on interest rates. In reality, a lack of business and consumer confidence can cause a prolonged recession, even if interest rates are near or at zero.
- Strengths of monetary policy include: (1) being incremental, flexible and easily reversible, plus (2) the relatively short time lags.
 - **Incremental, flexible and easily reversible** – The ability to adjust interest rates incrementally, often on a monthly basis, means policymakers can monitor the effectiveness of monetary policy. A central bank has the flexibility to act in the best interest of the economy, without political interferences. The decision is reversible as interest rates can be changed quickly to influence the level of economic activity.
 - **Short time lags** – Monetary policy may be preferred to fiscal policy as it can be implemented more quickly. By contrast, fiscal policy (such as tax changes) requires careful planning and legislating.

PAPER 1 EXAM PRACTICE QUESTION 24.1 (HL ONLY)

Explain **two** factors that determine a central bank's degree of control of the money supply and interest rates in the economy.

[10 marks]

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 24.2

Use the data below to calculate the real interest rate in 2019, 2020 and 2021. Show all your working out, rounded to 2 d.p. where appropriate. [3 marks]

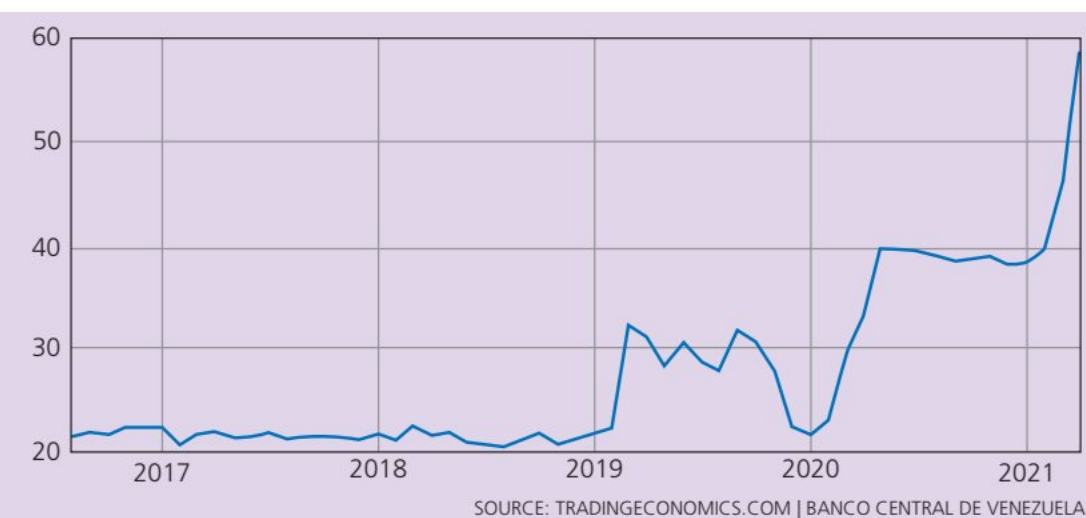
Year	Consumer price index (CPI)	Nominal interest rate (%)
2018	100	4.0
2019	105	4.5
2020	110	4.0
2021	105	2.5

PAPER 2 EXAM PRACTICE QUESTION 24.3



■ **Figure 24.5** Interest rates in New Zealand (%), 2016–21

Source: <https://tradingeconomics.com/new-zealand/interest-rate>



■ **Figure 24.6** Interest rates in Venezuela (%), 2016–21

Source: <https://tradingeconomics.com/venezuela/interest-rate>

With reference to each of the graphs above, explain one possible reason for the contrasting interest rate policies of the respective governments. [4 marks]

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 24.4

With the aid of an AD–AS diagram, explain how the use of monetary policy can help to close an inflationary gap. [4 marks]

PAPER 1 EXAM PRACTICE QUESTION 24.5

Explain how monetary policy can be used to influence the level of economic activity in a country. [10 marks]

Chapter summary

- Monetary policy is the use of interest rates and the money supply to influence the level of aggregate demand and economic activity in order to achieve the country's macroeconomic objectives.
- Goals of monetary policy include: (1) a low and stable rate of inflation (inflation targeting), (2) low unemployment, (3) reducing business cycle fluctuations, (4) promoting a stable economic environment for long-term growth, and (5) achieving an external balance.
- Commercial banks are able to create money through the credit creation process, which can be worked out by using the money multiplier process and the rate of the minimum reserve requirement (MRR).
- The tools of monetary policy (HL only) are: (1) open market operations, (2) minimum reserve requirements, (3) changes in the central bank minimum lending rate (base rate/discount rate/refinancing rate changes), and (4) quantitative easing.
 - Open market operations (OMO) occur when the central bank buys or sells government securities in order to influence interest rates. It either injects money into the economy to stimulate economic activity or withdraws money in order to reduce inflation.
 - The minimum reserve requirement (MRR) is the lowest amount that commercial banks are required to keep as reserves in the central bank, thereby limiting how much they can lend and how much credit they can create.
 - The minimum lending rate (MLR) is the official and lowest rate of interest charged by the central bank on loans to commercial banks.
 - Quantitative easing (QE) injects money directly into the economy via the central bank purchasing bonds (government-backed securities with a promise to pay later).
- The demand for money refers to the desire of households and firms to hold money (rather than saving it) in order to finance spending and investment. (HL only)
- The supply of money refers to the total amount of money circulating in the economy at any point in time. (HL only)
- Equilibrium interest rates are determined by the intersection of the demand for and supply of money in circulation. (HL only)
- The real interest rate accounts for the impact of inflation on the return to savers and the cost of debts to borrowers. The formula is: $\text{Real interest rate} = \text{Nominal interest rate} - \text{Inflation rate}$.
- Expansionary monetary policy is used to stimulate aggregate demand by increasing the money supply or lowering interest rates, thus stimulating economic activity. It is used to close deflationary (recessionary) gaps.
- By contrast, contractionary monetary policy involves increasing interest rates or restricting the money supply to discourage over-consumption and limit investment expenditure in the economy. It is used to close inflationary gaps.
- The effectiveness of monetary policies can be determined by the extent to which they help to achieve the macroeconomic objectives (economic growth, low unemployment and price stability). However, monetary policy is limited by the extent to which interest rates can be lowered when they are close to zero, as well as low consumer and business confidence levels.
- The strengths of monetary policies in comparison to fiscal policies are that changes are incremental, flexible and easily reversible, and that short time lags are involved.

Demand management – fiscal policy

■ Fiscal policy (AO2)

- **Fiscal policy** is the use of taxation and government expenditure strategies to influence the level of economic activity and to achieve the macroeconomic aims of low unemployment, sustainable economic growth and low inflation (price stability).
- Taxation can be used to redistribute income and wealth to improve overall standards of living in the country.
- As a form of demand-side policy, fiscal policies directly influence the level of aggregate demand (AD) in the economy. Expansionary fiscal policy is used to stimulate AD, whereas contractionary fiscal policy is used to reduce the level of economic activity.

■ Sources of revenue

The main sources of government revenue are: (1) direct and indirect taxation, (2) the sale of goods and services from state-owned enterprises, and (3) privatization proceeds (from the sale of government assets).

- **Direct and indirect taxation** – Direct taxation is imposed on the incomes, wealth and profits of individuals and firms, for example, taxes on wages and salaries, inheritance, and company profits. Indirect taxation refers to expenditure taxes imposed on the spending of goods and services in the economy, such as taxes on the sale of petrol, alcohol and cigarettes.
- **The sale of goods and services from state-owned enterprises** – Revenue from state-owned enterprises (or *nationalized industries*) could include national providers of postal services, the national broadcasting corporation, airport authorities and state railway operators. As the public sector does not primarily aim for profits, revenues from nationalized industries are typically used to pay for the costs of providing the good or service.
- **The sale of government assets** – This practice, known as *privatization*, generates government proceeds by selling state-owned assets and enterprises to shareholders in the private sector. However, privatization is a short-lived policy as government assets can be sold only once and there is a finite supply of public sector assets.

■ Expenditures

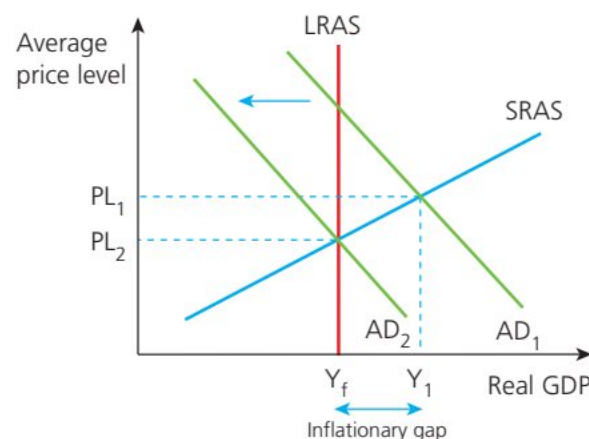
- The government uses its various sources of revenue to finance its expenditures to redistribute income and wealth in the economy, thereby improving standards of living.
- Government expenditure is a key component of aggregate demand (AD). An increase in government spending (G) tends to help boost real national output, employment and economic growth.

- The main expenditures of the government are: (1) current expenditures, (2) capital expenditures, and (3) transfer payments.
 - **Current expenditures** (or *consumption expenditures*) – These are items of government spending on goods and services consumed within the current year.
 - This includes items of spending on a reoccurring basis, often for day-to-day purposes.
 - It is used for immediate operations rather than for future use.
 - Examples of such spending are wages and salaries for public sector workers, supplies for government hospitals, clinics and schools, and interest payments on public sector borrowing.
 - **Capital expenditures** (or *fixed capital formation*) – These are items of government spending on long-term assets (public sector investments) that boost the economy's productive capacity.
 - Government expenditure on the country's capital stock is very costly so needs to be planned and funded carefully.
 - Such expenditures create future benefits for members of society.
 - Examples include spending on new roads, motorways (highways), tunnels, ports, airports, state schools and public hospitals.
 - **Transfer payments** – These are welfare expenses of the government, used to redistribute income to low-income groups in society.
 - Unlike current and capital expenditures, there is no corresponding exchange of goods or services with transfer payments.
 - Examples of transfer payments include unemployment benefits (or unemployment compensation), state pensions for retirees, housing benefits, disability payments and child allowances.

■ Goals of fiscal policy (AO2)

The goals of fiscal policy are: (1) low and stable inflation (price stability), (2) low unemployment, (3) promoting a stable economic environment for long-term growth, (4) reducing business cycle fluctuations, (5) equitable distribution of income, and (6) external balance.

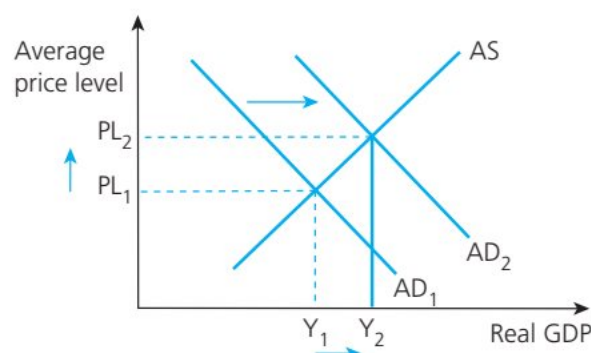
- **Low and stable inflation (price stability)** – Fiscal policies can be used to help control the rate of inflation in the economy, thereby promoting price stability and influencing the country's international competitiveness (see Figure 25.1).



Contractionary fiscal policy, such as the use of higher tax rates and/or deliberate use of a budget surplus, reduces consumption (C), investment (I) and government spending (G), thereby shifting the AD curve from AD_1 to AD_2 . This shrinks real GDP from Y_1 to Y_f (which closes the inflationary gap) and reduces the average price level from PL_1 to PL_2 .

■ **Figure 25.1** Fiscal policy and the control of inflation

- **Low unemployment** – Expansionary fiscal policy is best suited to tackle cyclical unemployment (or demand-deficient unemployment), which occurs during a recession, with the lack of AD causing mass job losses across the economy.
 - The policy involves a reduction in taxes and/or increased government expenditure. This should, in theory, increase the level of AD (see Figure 25.2) and hence the derived demand for labour.



Tax cuts help to increase the level of consumption (C) and investment expenditure (I), along with increased government spending (G) help to increase the level of AD from AD_1 to AD_2 . This raises the real GDP from Y_1 to Y_2 , which leads to more employment opportunities and lowers unemployment in the economy.

■ **Figure 25.2** Expansionary fiscal policy to reduce unemployment

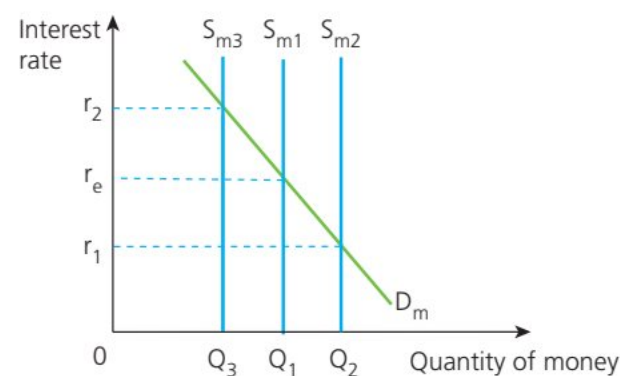
- **Promote a stable economic environment for long-term growth** – Higher taxes tend to reduce incentives to work and to produce, which may therefore have a negative impact on the economy as a whole. By contrast, tax cuts can boost spending in the domestic economy, thus benefiting individuals, households, firms and the economy (through job creation and foreign direct investments). However, unwarranted tax cuts cause excessive spending so can be inflationary.
- **Reduce business cycle fluctuations** – To reduce the impacts of a recession in the business cycle, the government can run a budget deficit (spending more than it gets from its various sources of revenue). For example, social welfare payments tend to rise during a recession, while tax revenues fall due to rising unemployment. The budget deficit helps to stabilize the economy. By contrast, if the economy experiences a boom, tax revenues will be higher due to increased earnings and consumption, while government spending on transfer payments will tend to fall. This also helps to reduce fluctuations in the business cycle.
- **Equitable distribution of income** – Fiscal policy can be used to redistribute income and wealth to benefit poorer members of society, such as the unemployed or retirees. This can be achieved by using high marginal tax rates in a progressive tax system as well as wealth taxes. This helps to fund the provision of essential goods and services like public education and healthcare.
- **External balance** – The external balance is the value of a nation's exports (X) being equal to its imports (M), that is, $X = M$. Indirect taxes levied on imports and/or government subsidies paid to domestic exporters will generally increase the external balance as $X > M$ but leads to inflationary pressures as more money flows into the economy. By contrast, if $M > X$, the economy experiences a negative external balance. This means it spends more than it earns from international trade, which is not sustainable in the long run. Hence, fiscal policies can be used to achieve an external balance, which is considered essential for the country's long-term economic growth.

TOP TIP!

The six goals of fiscal policy can be remembered by the acronym **BUDGIE** in terms of tackling: **B**usiness cycle fluctuations, **U**nemployment, **D**istribution of income and wealth, **G**rowth, **I**nflation and **E**xternal balance.

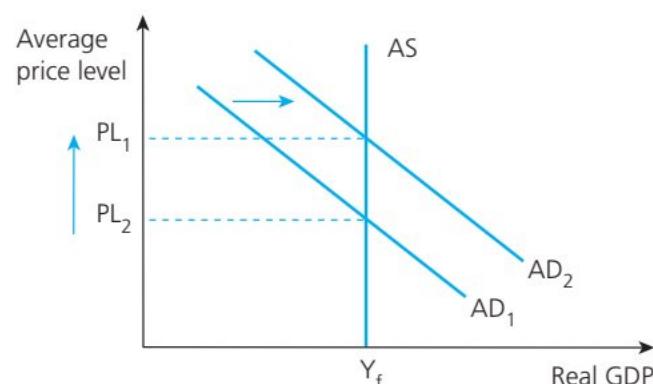
■ Expansionary and contractionary fiscal policies (AO3, AO4)

- **Expansionary fiscal policy** is a demand-side policy used to stimulate the economy by increasing government expenditure and/or lowering taxes to boost consumption and investment, thereby helping to close a deflationary (recessionary) gap.
- Government expenditure (G) itself is a key component of aggregate demand ($AD = C + I + G + X - M$). Thus, changes in the level of government spending will directly influence the level of AD in the economy, *ceteris paribus*.
- Keynesian economists believe there is a need for direct government intervention to influence the level of economic activity, especially during an economic downturn and times of high unemployment (see Figure 25.3).
 - Expansionary fiscal policy increases AD from AD_1 to AD_2 , thus boosting real GDP from Y_0 to Y_1 . As there is no pressure on the general price level along this section of the Keynesian AS curve, prices remain at PL_1 .
 - If these expansionary policies are continued, then AD will increase from AD_2 to AD_3 , which leads to an increase in real GDP from Y_1 to Y_2 and hence an increase in economic growth and lower unemployment. However, this will add inflationary pressure as the average price level rises from PL_1 to PL_2 .
 - If AD is allowed to continue to expand from AD_3 to AD_4 , the change in real GDP from Y_2 to Y_f would be less than the change in the average price level from PL_2 to PL_3 due to the increasing scarcity of factors of production.
 - Hence, Keynesians believe that expansionary fiscal policies are effective in getting the economy out of a recession and stimulating growth up to the point where it operates at Y_f (the full employment level of national output).



■ **Figure 25.3** The impact of expansionary fiscal policy (Keynesian view)

- By contrast, monetarists/new classical economists are more critical of the ability of expansionary fiscal policy to stimulate economic growth in the long run as such policies have no real impact on the level of real GDP (see Figure 25.4).



Monetarists argue the use of demand-side policies simply creates inflationary pressures as average prices rise from PL_1 to PL_2 , without any corresponding change in the full employment level of real national output (Y_f).

■ **Figure 25.4** The impact of expansionary fiscal policy (monetarist view)

- Instead, monetarists/new classical economists prefer to emphasize the use of supply-side policies to increase the economy's long run aggregate supply (LRAS) and reduce the natural rate of unemployment.
- **Contractionary fiscal policy** is used to reduce the level of economic activity by cutting government spending and/or raising taxes to limit consumption (C) and investment (I). Such policies tend to be used to reduce inflationary pressures during an economic boom, thereby helping to close an inflationary gap.

■ Keynesian multiplier (AO2, AO4) (HL only)

- The **Keynesian multiplier** shows that any increase in the value of injections into the circular flow of an economy results in a proportionately larger increase in aggregate demand (AD). This is because injections into the circular flow of income stimulate further rounds of spending in the economy.
- Injections are the sources of expenditure that increase spending in the economy, namely export earnings (X), government spending (G) and investments (I). An increase in any of the injections will increase the value of the Keynesian multiplier, *ceteris paribus*.
- By contrast, leakages or withdrawals reduce the value of the Keynesian multiplier. So, an increase in savings (S), taxes (T) and/or import expenditure (M) creates a **negative multiplier effect**, which leads to a greater than proportionate fall in real GDP.
- There are two formulae that can be used to calculate the Keynesian multiplier:
 - $\text{Keynesian multiplier} = 1 \div (1 - \text{MPC})$
 - $\text{Keynesian multiplier} = 1 \div (\text{MPS} + \text{MPT} + \text{MPM})$
- There are four determinants of the Keynesian multiplier:
 - The **marginal propensity to consume** (MPC) measures the proportion of a change in income that is spent on goods and services rather than saved. The $\text{MPC} = \Delta C \div \Delta Y$, where C = consumption and Y = income. The higher the MPC, the larger the multiplier effect.
 - The **marginal propensity to import** (MPM) measures the proportion of a change in income that is spent on imports (M) rather than on domestically produced goods and services. The $\text{MPM} = \Delta M \div \Delta Y$. So, if households spend a larger proportion of extra income on imports, the value of the Keynesian multiplier will fall.
 - The **marginal propensity to save** (MPS) measures the proportion of a change in income that is saved rather than spent. The $\text{MPS} = \Delta S \div \Delta Y$. The higher the MPS, the lower the Keynesian multiplier will tend to be as more money leaks from the circular flow of income.
 - The **marginal propensity to tax** (MPT) measures the proportion of each extra dollar of income earned that is taxed. The $\text{MPT} = \Delta T \div \Delta Y$. The higher an economy's marginal tax rates are, the lower the Keynesian multiplier will be as more money is withdrawn from the economy.

TOP TIP!

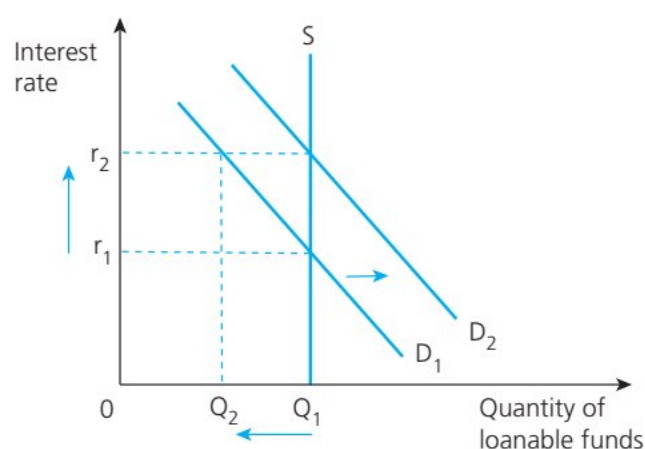
Essentially, a high MPM, MPS and MPT will reduce the value of the Keynesian multiplier and hence the impact of any attempt by the government to boost spending in the economy.

■ Effectiveness of fiscal policy (AO3)

The effectiveness of fiscal policy can be judged by the extent to which it achieves specific macroeconomic objectives, such as economic growth, a stable rate of inflation and low unemployment.

■ Constraints on fiscal policy

- The constraints on fiscal policy (in terms of achieving the country's macroeconomic goals) include: (1) political pressures, (2) time lags, and (3) sustainable debts. HL students need to know a fourth limitation: (4) the crowding-out effect.
 - **Political pressures** – Government spending and taxation policies are often influenced by political rather than economic factors. Large tax cuts may help to gain political votes rather than tackling fundamental economic problems such as price instability or declining international competitiveness due to rising inflation in the domestic economy.
 - **Time lags** – Changes to fiscal policies take time to plan, get approval and execute before there are any impacts on the economy. Tax laws take time to legislate and administer. A small cut in income tax, for example, is likely to take some time before households adjust their spending habits and consumption levels. Hence, time lags (delays) slow down the implementation and hence effectiveness of fiscal policy.
 - **Sustainable debts** – The effectiveness of fiscal policy will depend on the extent to which the government can afford to sustain a budget deficit. In the short run, a budget deficit ($G > T$) can be used to fund expansionary fiscal policies. However, this is not sustainable in the long run as the government has to repay its national debts. This will limit the extent to which fiscal policies can be used to achieve macroeconomic objectives.
 - **Crowding out (HL only)** – **Crowding out** occurs when increased government borrowing causes interest rates to rise, thereby reducing private sector investments (see Figure 25.5). Hence, although government spending (G) might increase, the consequential increase in interest rates causes private sector investment (I) to fall. Hence, this limits the effectiveness of expansionary fiscal policies.



The supply of loanable funds is fixed per time period, so is unresponsive to a change in the interest rate. An increase in government demand for borrowed funds (to finance its budget deficit) leads to a large increase in interest rates from r_1 to r_2 . This results in private sector firms being able to borrow only Q_2 loanable funds yet they are charged the higher interest rate of r_2 .

■ **Figure 25.5** The crowding-out effect in the loanable funds market

TOP TIP!

HL students should be able to include the concept of the Keynesian multiplier when evaluating the effectiveness of contractionary or expansionary fiscal policies with reference to macroeconomic objectives.

■ Strengths of fiscal policy

- The strengths of fiscal policy include: (1) being able to target specific economic sectors, and (2) government spending being effective in getting the economy out of a deep recession. HL students also need to know a third strength: (3) the use of automatic stabilizers.
- **Targeting of specific economic sectors** – Whereas monetary policy is indiscriminate, fiscal policy can be used to target specific sectors of the economy. This can be due to regional disparities in income and spending habits, or due to wage differentials between individuals and households. For example, tax cuts might be applied only to the lowest income earners in order to redistribute income and wealth. Similarly, government spending can be targeted at the unemployed, retirees, those with disabilities or those with young children.
- **Government spending effective in deep recession** – An injection of government spending means that economic activity increases in order to tackle a recession, even if this means having to run a budget deficit. Expansionary fiscal policy can also help to increase both consumer and business confidence levels during a recession. This creates some incentives for firms to continue hiring workers and to have faith in the economy.
- **Automatic stabilizers (HL only)** – Aspects of fiscal policy naturally reduce fluctuations in the level of economic activity, thereby stabilizing the rate of growth in real GDP. The two main types of automatic stabilizers are progressive taxes and unemployment benefits.
 - **Progressive taxes** – During a boom, progressive taxes mean the government automatically receives more tax revenues from higher earnings (direct taxes) and spending (indirect taxes). Hence, progressive taxes limit the extent to which real GDP can grow so avoid the risks of uncontrollable inflation in the economy.
 - **Unemployment benefits** – These transfer payments ensure the unemployed have some money to meet their consumption expenditure needs. Hence, negative economic growth in a recession is minimized by automatic stabilizers and helps to avoid the risks of a deep recession. Keynesian economists argue that automatic stabilizers are important to cushion a fall in AD and employment during a recession.

TOP TIP!

When evaluating the effectiveness of fiscal policies, remember *why* these are being used in the first place – consider the strengths and limitations of these policies in trying to achieve economic growth, low unemployment, and a low and stable rate of inflation.

PAPER 1 EXAM PRACTICE QUESTION 25.1

Explain how fiscal policy can be used to influence the level of aggregate demand in an economy.

[10 marks]

PAPER 1 EXAM PRACTICE QUESTION 25.2

Explain how the effectiveness of expansionary fiscal policies is dependent on the shape of the aggregate supply (AS) curve.

[10 marks]

PAPER 3 EXAM PRACTICE QUESTION 25.3 (HL ONLY)

A country experiencing a recessionary gap injects \$500 million in the economy. It is also known that the:

- marginal propensity to save (MPS) = 0.2
- marginal propensity to tax (MPT) = 0.25
- marginal propensity to import (MPM) = 0.3
- a Calculate the value of the Keynesian multiplier. [1 mark]
- b Using your answer from above, show how much the initial injection of money increases the value of final real GDP in the economy. [2 marks]

PAPER 3 EXAM PRACTICE QUESTION 25.4 (HL ONLY)

- a Explain why calculating the value of the Keynesian multiplier can be useful for government macroeconomic policymaking. [2 marks]
- b Calculate the expected change in the value of real GDP if the government spends \$11.5 billion on infrastructure and the country's marginal propensity to consume (MPC) is 0.8. [2 marks]
- c Calculate the amount of government expenditure needed to restore macroeconomic equilibrium if the country has a \$25 billion recessionary gap and its MPC is 0.75. [2 marks]
- d Calculate the impact on real GDP if the government increases tax revenues by \$40 billion, due to inflationary pressures in the economy, and the MPC is 0.8. [2 marks]

Chapter summary

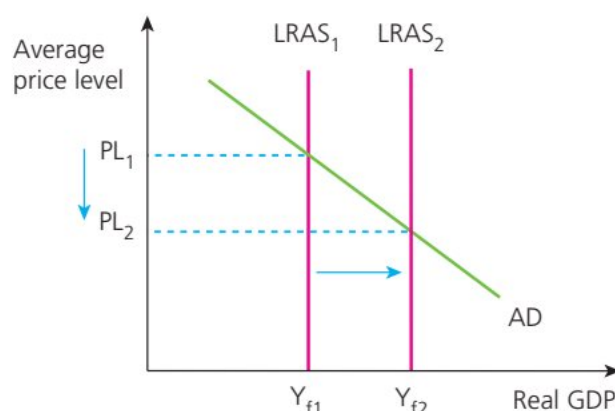
- Fiscal policy is the use of taxation and government expenditure strategies to influence the level of economic activity and to achieve macroeconomic objectives.
- The main reason for taxation is to raise funds for government expenditure, such as the spending on government-funded schools, hospitals and transportation networks.
- The main sources of government revenue are: (1) direct and indirect taxation, (2) the sale of goods and services from state-owned enterprises, and (3) the sale of government assets.
- Government spending (G) is a key component of aggregate demand (AD), so an increase in government spending tends to boost real national output, employment and growth.
- Government expenditures can be classified as: (1) current expenditures, (2) capital expenditures, and (3) transfer payments.
- The goals of fiscal policy are: (1) low and stable inflation, (2) low unemployment, (3) a stable economic environment for long-term growth, (4) reduce business cycle fluctuations, (5) equitable distribution of income, and (6) external balance.
- Expansionary fiscal policy is used to reduce the harmful effects of a recession by boosting real GDP and reducing unemployment. The opposite applies to contractionary fiscal policy.

- The Keynesian multiplier shows that any increase in the value of injections into the circular flow results in a proportionately larger increase in AD. The opposite applies to the negative multiplier effect. It is calculated using the formula $1 \div (1 - MPC)$ or $1 \div (MPS + MPT + MPM)$. (HL only)
- Constraints on fiscal policy include: (1) political pressures, (2) time lags, and sustainable debt. Crowding out is an additional constraint. (HL only)
- Crowding out means that government attempts to increase spending through increased borrowing raise interest rates and reduce the loanable funds available for private sector investments. This limits the effectiveness of such expansionary fiscal policies. (HL only)
- Strengths of fiscal policy include: (1) targeting of specific economic sectors, and (2) government spending being effective in deep recessions. HL students need to be aware of an additional strength: (3) automatic stabilizers through the use of progressive taxes and unemployment benefits. (HL only)

Supply-side policies

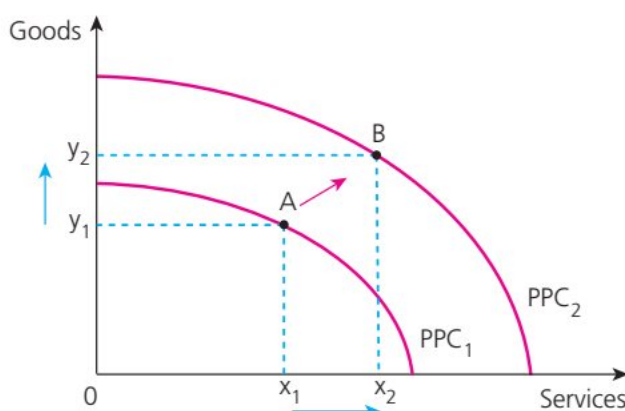
■ Goals of supply-side policies (AO2)

- **Supply-side policies** are long-term government strategies used to increase the potential productive capacity of the economy by increasing the quality and/or quantity of factors of production.
- Supply-side policies are used because increases in the productive capacity of the economy can be achieved only through an increase in the economy's long run aggregate supply (LRAS).
- Supply-side policies aim to make markets and industries more productive and efficient, thereby contributing to an increase in the country's real national output. Hence, many economists believe that improved supply-side performance is vital for the economy to achieve sustained growth and development without the threat of inflation.
- There are five main goals of supply-side policies: (1) long-term growth by increasing the economy's productive capacity, (2) improving competition and efficiency, (3) reducing labour costs and unemployment through labour market flexibility, (4) reducing inflation to improve international competitiveness, and (5) increasing firms' incentives to invest in innovation by reducing costs.
- **Long-term growth by increasing the economy's productive capacity** – Supply-side policies shift the economy's production possibility curve (PPC) or its LRAS curve outwards (see Figure 26.1 and Figure 26.2).



Supply-side policies are used to increase the productive capacity of the economy from Y_{f1} to Y_{f2} by shifting the LRAS curve to the right from $LRAS_1$ to $LRAS_2$. A major advantage of this is that the average price level falls, from PL_1 to PL_2 .

■ **Figure 26.1** Increasing the economy's productive capacity (LRAS)



In this case, supply-side policies are used to shift the economy's production possibility curve from PPC_1 to PPC_2 . This increases the economy's capacity to produce more goods and services, from point A on PPC_1 to point B on PPC_2 .

■ **Figure 26.2** Increasing the economy's productive capacity (PPC)

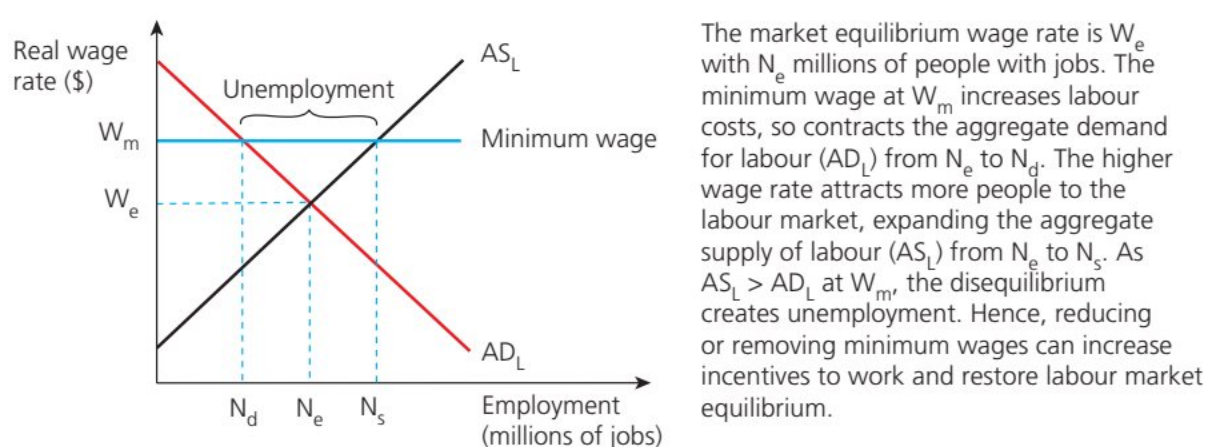
- **Improving competition and efficiency** – Supply-side policies aim to improve the degree of competition and efficiency in markets. For example, trade liberalization policies are used to encourage international trade and create incentives for firms to be efficient. Competition also stimulates investments in research and development (R&D), which increases the potential output of the economy.
- **Reducing labour costs and unemployment through labour market flexibility** – Labour market reforms are used to increase labour market flexibility and efficiency so that the workforce is more productive and competitive. For example, reducing or removing minimum wages and the power (influence) of labour unions reduces labour costs and administrative barriers in order to improve the efficiency of firms.
- **Reducing inflation to improve international competitiveness** – Supply-side policies help to increase the economy's LRAS and allow the average price level to fall, which improves the country's international competitiveness. For example, removing minimum wages (to cut labour costs) or using trade liberalization policies helps to increase the degree of competition in markets.
- **Increasing firms' incentives to invest in innovation by reducing costs** – Supply-side policies, such as reduced corporation taxes, aim to create or increase incentives for firms to innovate. Tax incentives and/or government subsidies to encourage R&D can also encourage foreign direct investment (FDI) in the economy.

■ Market-based policies (AO2, AO4)

- **Market-based supply-side policies** focus on freeing up industries and improving market incentives to increase aggregate supply in the economy. Examples of market-based supply-side policies include: (1) policies to encourage competition and efficiency, (2) labour market reforms to increase aggregate supply, and (3) incentive-related policies.
- **Policies to encourage competition** – Competition helps to improve economic efficiency and innovation, thereby increasing the potential output of the economy. The four main policies to achieve this are: deregulation, privatization, trade liberalization and anti-monopoly regulation.
 - **Deregulation** – This is the reduction or removal of statutory barriers to entry into certain industries, thereby allowing markets to operate more competitively and efficiently. Deregulation reduces the market power of firms that face little or no competition, such as state-owned monopolies.
 - **Privatization** – This involves the sale or transfer of public sector assets (such as state-owned enterprises) to the private sector in order to increase competition, efficiency and productivity. This encourages firms to become more efficient in order to survive and to earn a profit.
 - **Trade liberalization** – This involves the reduction or removal of barriers to international trade, such as tariffs, quotas and subsidies (to support domestic firms). The purpose is to encourage more competition and greater efficiency in export and import markets. Improved efficiency can also help to attract foreign direct investment (FDI) in the economy.
 - **Anti-monopoly regulation** – This refers to laws that control or limit the restrictive practices and market power of dominant firms in an industry. Anti-monopoly regulations protect the interests of consumers against anti-competitive

behaviour of monopolies. For example, firms with monopoly power have the ability to set higher prices than in competitive markets. Hence, anti-monopoly regulations are used to promote or enforce competition in order to benefit consumers.

- **Labour market policies** – These are government policies designed to create greater flexibility and efficiency in labour markets. Examples include:
 - reducing the power of labour unions to improve efficiency in labour markets
 - reducing unemployment benefits to create incentives to work
 - abolishing minimum wages to reduce labour costs (see Figure 26.3).



■ **Figure 26.3** Impact of a minimum wage on the labour market

- **Incentive-related policies** – This type of market-based supply-side policy aims to create greater incentives to work. For example, cutting taxes on personal incomes motivates people to work while lowering business taxes encourages more investment expenditure in the economy. The result is an increase in the economy's long run aggregate supply.
- **Interventionist policies (AO2)**
 - **Interventionist supply-side policies** are the deliberate attempts by a government to influence aggregate supply and the productive capacity of the economy. Diagrammatically, this is shown by an increase in or outwards shift of the country's long run aggregate supply (LRAS) curve.
 - Interventionist supply-side policies rely on an efficiently functioning institutional framework – the established systems, structures and contexts that shape the economic behaviour in a country, including its legal system.
 - These policies include: (1) education and training, (2) improving the quality, quantity and access to healthcare services, (3) research and development (R&D), (4) the provision of infrastructure, and (5) industrial policies.
 - **Education and training** – These policies aim to improve human capital by spending more on education and training to raise the skills, mobility and productivity of the labour force in the long run.
 - **Improving quality, quantity and access to healthcare** – Financing public healthcare services, such as hospitals and medical clinics, helps to improve the quality and quantity of access to healthcare in the country. Healthcare provision is vital for improving the supply-side of the economy as businesses can face substantial costs from time lost due to ill-health of their employees.

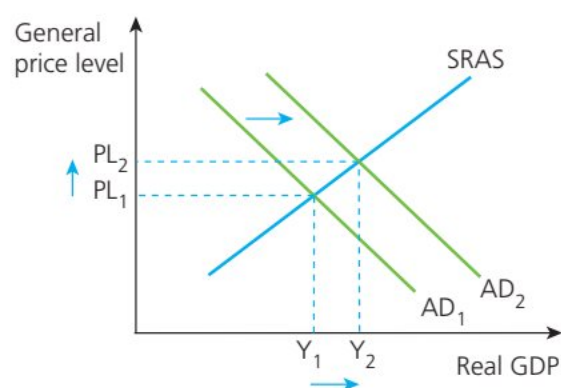
- **Research and development (R&D)** – This refers to business activities to introduce, improve or innovate products, processes and procedures to create new knowledge for commercial purposes. Spending on R&D can help to enhance productivity and efficiency, which can be an important source of international competitive advantage.
- **Provision of infrastructure** – Increasing investment in a country's provision of infrastructure helps to boost its productive capacity in the long run. Infrastructure refers to the physical and organizational structures and facilities of an economy necessary for its operations, including transportation networks, telecommunications networks, power supplies and waste disposal systems.
- **Industrial policies** – These are interventionist supply-side policies aimed at encouraging the development and growth of the manufacturing sector of an economy in order to promote growth and employment. They target specific key industries by using methods such as a combination of tax breaks and lower interest rates on commercial loans to create incentives for firms to locate in less prosperous areas of a country or to encourage more business start-ups.

■ **Table 26.1** Summary of market- and interventionist-based supply-side policies

Market-based	Interventionist-based
Government income tax reforms to enhance incentives to work	Government finance for infrastructural programmes
Reducing the power and influence of labour unions (trade unions)	Direct support via industrial policies to help targeted businesses and markets
Subsidies to encourage firms to relocate to areas with high unemployment	Financing public healthcare services, such as hospitals and medical clinics
International trade deals and trade liberalization policies	Government funding for schools and universities, and training centres
Privatization of government-owned assets and enterprises	Government provision of transportation programmes, including railroads and road networks
Reducing or removing minimum wages to lessen labour market rigidities (inflexibilities)	Government retraining programmes to improve the labour mobility of those in structural or cyclical unemployment
Tax allowances or tax discounts to encourage foreign direct investment (FDI)	Tax incentives and/or subsidies to encourage R&D

■ Demand-side effects of supply-side policies (AO2)

- Supply-side policies are long-term strategies used to increase the LRAS. However, these policies have some demand-side effects on the level of aggregate demand. Similarly, some demand-side policies, such as cuts in personal income taxes and corporate taxes, will have supply-side effects too.
- Although the benefits of supply-side policies may take many years to materialize, such as investments in education or R&D, the spending has a direct impact on AD. For example, tax incentives (being a form of interventionist supply-side policies) have an expansionary fiscal effect on both consumption (C) and investment (I), thereby boosting aggregate demand in the economy (see Figure 26.4).
- Interventionist supply-side policies (such as education, training, healthcare, R&D, infrastructure and industrial policies) have a demand-side effect because they involve taxation and/or government spending. Hence, the increased government spending (G) contributes to an increase in aggregate demand.
- Supply-side policies can be used to achieve economic growth and lower unemployment, even though this may cause some inflation in the short run.



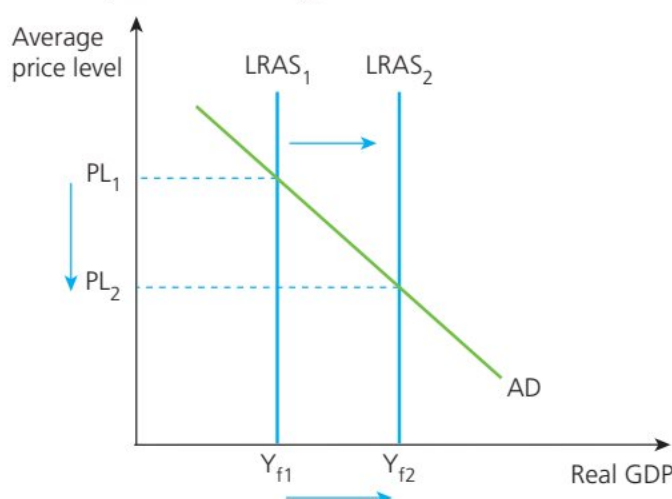
An increase in spending on government-funded education and healthcare increases aggregate demand from AD_1 to AD_2 . This causes an expansion along the short run aggregate supply (SRAS) curve, raising real GDP from Y_1 to Y_2 , but with the general price level rising from PL_1 to PL_2 .

■ **Figure 26.4** Demand-side effects of supply-side policies (short run)

- In reality, AS and AD do not work in isolation. For example, expansionary monetary policy in the form of lower interest rates – while being classified as a demand-side policy – can influence aggregate supply by creating incentives for domestic firms to invest and attract foreign direct investments. This will subsequently have a direct impact on the economy's LRAS.

■ Supply-side effects of fiscal policies (AO2)

- Expansionary fiscal policy, such as an increase in government spending on education and healthcare, can increase consumption and investment expenditure, so therefore directly affect the level of aggregate demand (see Figure 26.5).
- Similarly, government spending on R&D will not only shift aggregate demand in the short run but will also increase the quantity and quality of factors of production over time. Hence, fiscal policies can have a positive impact on the economy's potential output in the long run.



Expansionary fiscal policy (a type of demand-side policy) in the form of lower personal income taxes and business taxes can increase the incentive for people to work and for firms to invest. This raises the economy's productive capacity from Y_{f1} to Y_{f2} in the long run, which causes an expansion along the AD curve. As a result of this, the economy also benefits from lower average prices from PL_1 to PL_2 .

■ **Figure 26.5** Supply-side effects of fiscal policies (long run)

■ Effectiveness of supply-side policies (AO3)

The effectiveness of supply-side policies depends on the constraints and strengths of these policies in achieving the macroeconomic objectives of economic growth, low unemployment, and low and stable inflation.

■ Constraints on market-based supply-side policies

- **Equity issues** – Market based supply-side policies do not necessarily improve equity in the distribution of income because economic growth can create greater disparities and inequalities in the economy. For example, a cut in personal income tax rates is

likely to benefit higher income earners more and those on lower incomes, so causes greater inequalities in income and wealth.

- **Time lags** – A major limitation of supply-side policies is the time it takes for there to be any real impact on the country's real GDP. For example, it is likely to take significant time to plan, execute and review policies to increase trade liberalization and competition (such as anti-monopoly legislation). While supply-side policies tend to have more permanent impacts on output and employment, they take longer to accomplish than demand-side policies.
- **Vested interests** – This refers to an individual or group stakeholder with a personal reason for being involved in a particular policy, decision or situation. For example, although the Hong Kong SAR government privatized its rail services in October 2000, it remains a major shareholder of the MTR Corporation, which has enjoyed monopoly power. In theory, this could mean the lack of any incentive for the rail operator to cut costs or prices.
- **Environmental impact** – Supply-side policies strive to increase the potential output of the economy, but this can be costly to the natural environment. For example, if environmental regulations are relaxed (as part of deregulation and trade liberalization policies), this is likely to have negative effects on the environment, such as resource depletion, climate change and damage or destruction of ecosystems.

■ **Constraints on interventionist supply-side policies**

- **Costs** – A major constraint on interventionist supply-side policies is the huge costs involved. The government's budget is likely to be stretched and possibly go into deficit to fund improved education and training, transportation and infrastructural networks, and public healthcare services. This may need to be funded through public sector borrowing, which increases the overall value of the national debt.
- **Time lags** – These are more significant for interventionist supply-side policies than the time lags for market-based supply-side policies. For example, it might take decades for a nation to enjoy the benefits of an improved education system in the country.

■ **Strengths of market-based supply-side policies**

- **Improved resource allocation** – Supply-side policies can be used to achieve sustainable economic growth by increasing the potential capacity of the economy by making more efficient use of the economy's scarce resources. An increase in national output will also create jobs in the economy over time. Supply-side policies can also reduce frictional and structural unemployment through improved labour market reforms.
- **No burden on government budget** – Market-based supply-side policies emphasize the importance of allowing markets to work more freely and efficiently. Hence, there is improved resource allocation without any substantial costs or burdens to the government. For example, there are no significant costs of deregulation, privatization, policies to increase competition, or trade liberalization policies. Hence, the economy can benefit from growth and employment in the long run without major burdens on the government budget or national debt.

■ **Strengths of interventionist supply-side policies**

- **Direct support of sectors important for growth** – Interventionist supply-side policies can be used to target specific sectors of the economy to facilitate their growth. For example, industrial policies such as tax credits (tax rebates) and/or subsidies can be used to improve the competitiveness of certain industries deemed to

be important for the economy in terms of growth and employment.

- As supply-side policies can improve resource productivity and national output without putting any pressure on the general price level, the international competitiveness of the country should also improve.
- Interventionist supply-side policies may also be necessary to support sectors that provide merit goods and public goods, otherwise they will be underprovided by the market system. In the long run, the economy benefits from economic growth, low unemployment, and a low and stable rate of inflation.

TOP TIP!

When evaluating the effectiveness of supply-side policies, remember to consider *why* these are being used in the first place – in terms of the strengths and limitations of such policies in promoting economic growth, achieving low unemployment, and reaching a low and stable rate of inflation in the economy.

TOP TIP!

The effects of supply-side policies can be remembered by the mnemonic **EPIC**:

- Supply-side policies improve economic **efficiency**.
- They increase labour and capital **productivity**.
- They provide **incentives** to work and invest.
- They make firms and the country as a whole more **competitive**.

PAPER 1 EXAM PRACTICE QUESTION 26.1

Explain **two** examples of market-based supply-side policies that can be used to achieve a country's macroeconomic objectives.

[10 marks]

PAPER 1 EXAM PRACTICE QUESTION 26.2

Explain how a cut in direct taxes impacts both the demand side and supply side of the economy.

[10 marks]

PAPER 1 EXAM PRACTICE QUESTION 26.3

Using real-world examples, discuss the extent to which supply-side policies can be used to achieve the government's macroeconomic objectives.

[15 marks]

Chapter summary

- Supply-side policies are long-term policy measures of the government used to increase the productive capacity (potential output) of the economy. Diagrammatically, the potential output of an economy is shown on its production possibility curve (PPC) or the full employment level of national output on the LRAS curve.
- There are five main goals of supply-side policies: (1) long-term economic growth by increasing the country's productive capacity, (2) improving competition and efficiency, (3) reducing labour costs and unemployment through labour market flexibility, (4) reducing inflation to improve international competitiveness, and (5) increasing incentives to invest in innovation by reducing costs of production.
- Market-based supply-side policies include:
 - policies to encourage competition: deregulation, privatization, trade liberalization and anti-monopoly regulation

- labour market policies (labour market reforms): reducing the power of labour unions, reducing unemployment benefits and abolishing minimum wages
- incentive-related policies: personal income tax cuts, and cuts in business tax and capital gains tax.
- Interventionist supply-side policies include: (1) education and training, (2) improving the quality, quantity and access to healthcare services, (3) research and development (R&D), (4) the provision of infrastructure, and (5) industrial policies.
- Aggregate demand and aggregate supply do not work in isolation. Demand-side policies can influence aggregate supply, and vice versa.
- Constraints on market-based supply-side policies include: (1) equity issues, (2) time lags, (3) vested interests, and (4) environmental impacts.
- Constraints on interventionist supply-side policies include: (1) improved resource allocation, and (2) no financial burden on the government budget.
- Strengths of market-based supply-side policies include: (1) costs, and (2) time lags.
- The main strength of interventionist supply-side policies is the direct support for sectors of the economy deemed to be important for economic growth.
- Most economists believe that improved supply-side performance of the economy is vital to achieving sustained economic growth and low unemployment, without causing a rise in the general price level.

Benefits of international trade

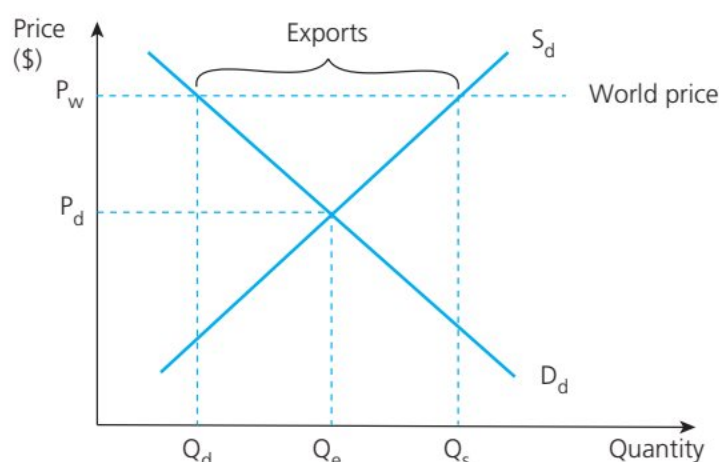
■ Benefits of international trade (AO2, AO4)

- **International trade** is the exchange of goods and services across national borders. It involves the sale of *exports* (goods and services sold to overseas buyers) and *imports* (foreign goods and services bought by domestic households and firms).
- Countries engage in international trade because scarce resources are unevenly distributed between countries. For example, Saudi Arabia and Kuwait have huge supplies of oil, while Thailand and Vietnam have suitable land and the right climate for growing crops such as rice and fresh fruits.
- The benefits of international trade tend to exceed the opportunity costs. These benefits include: (1) increased competition, (2) lower prices, (3) greater choice, (4) acquisition of resources, (5) more foreign exchange earnings, (6) access to larger markets, (7) economies of scale, (8) more efficient resource allocation, and (9) more efficient production.
 - **Increased competition** – International trade promotes competition between domestic and foreign firms. Increased competition tends to lead to a greater variety of goods and services being available, at more affordable prices, and of better quality.
 - **Lower prices** – Owing to increased competition, international trade tends to lead to lower prices as firms strive to be more economically efficient. Firms can also benefit from economies of scale by operating in larger markets, thus reducing their average costs of production. This can result in further price cuts.
 - **Greater choice** – International trade enables consumers and firms to access a larger variety of goods and services from different producers and suppliers from around the world.
 - **Acquisition of resources** – There are natural differences in the allocation of resources between countries. However, through international trade, countries can acquire resources such as natural resources and capital goods that are not available domestically to further their consumption and production. For example, Singapore acquires over 99 per cent of its primary resources from neighbouring countries.
 - **Foreign exchange earnings** – When firms sell goods and services to overseas customers, the country earns export earnings in the form of foreign exchange (foreign currencies). This enables the exporting country to make payments to other countries for the purchase of foreign goods and services (import expenditure).
 - **Access to larger markets** – Having greater access to larger markets around the world enables domestic firms to reach a larger customer base. By doing so, firms are able to achieve greater economies of scale, which leads to higher profit margins and the creation of jobs in the economy.
 - **Economies of scale** – By operating on a larger scale in international markets, international trade enables more firms to benefit from economies of scale, that is, cost savings lead to reduced average costs of production that can be passed on to consumers in the form of lower prices.

- **Efficient resource allocation** – International trade encourages an efficient allocation of the world's scarce resources by removing any trade barriers. Freer and fairer international trade forces domestic firms to focus on improving the quality of their output due to foreign competition, further improving resource allocation in the economy.
- **Efficient production** – Similarly, international trade enables more efficient production of goods and services to take place. It incentivizes firms to be productively efficient in order to compete on price and non-price factors (such as quality). It enables domestic consumers to access more goods and services and at lower prices.

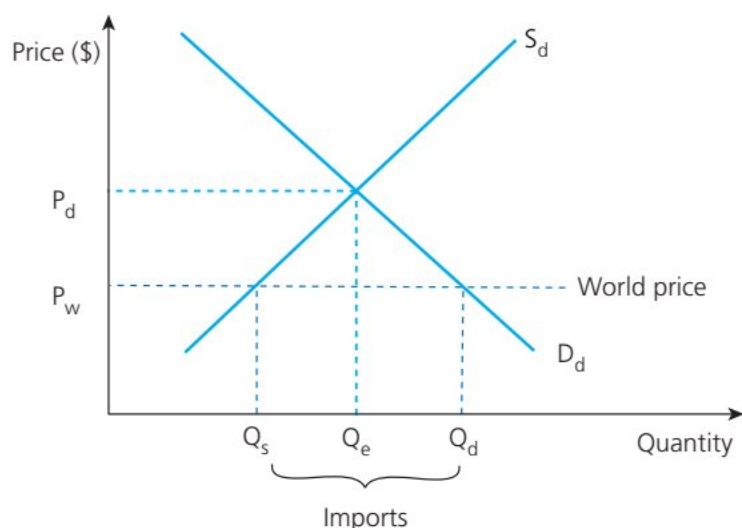
■ Illustrating free trade

- With international trade, the world price of a product determines if the domestic country will import the product from other countries or export it.
- If the export price of a product is higher than the world price (and hence the import price), it would make economic sense for the domestic country to import the good or service.
- By contrast, if export prices are lower than world prices, then the country is able to sell more of its products in overseas markets, *ceteris paribus*.



If the world price (P_w) is higher than the domestic price (P_d), there will be a contraction along the demand curve from Q_e to Q_d , and an extension along the supply curve from Q_e to Q_s . This results in excess supply. Hence, the country is able to export this excess, shown by the distance $Q_s - Q_d$ at the price of P_w . This situation can occur when the domestic country is more productively efficient in the output of a particular good or service.

■ **Figure 27.1** Impact on exports when the world price is above the domestic price



If the world price (P_w) is below the domestic price (P_d), there will be an expansion along the demand curve from Q_e to Q_d , and a contraction along the supply curve from Q_e to Q_s . This results in excess demand. Hence, the country needs to import this excess, shown by the distance $Q_d - Q_s$ at the price of P_w . This situation can occur when other countries are more productively efficient in the output of a particular good or service.

■ **Figure 27.2** Impact on imports when the world price is below the domestic price

TOP TIP!

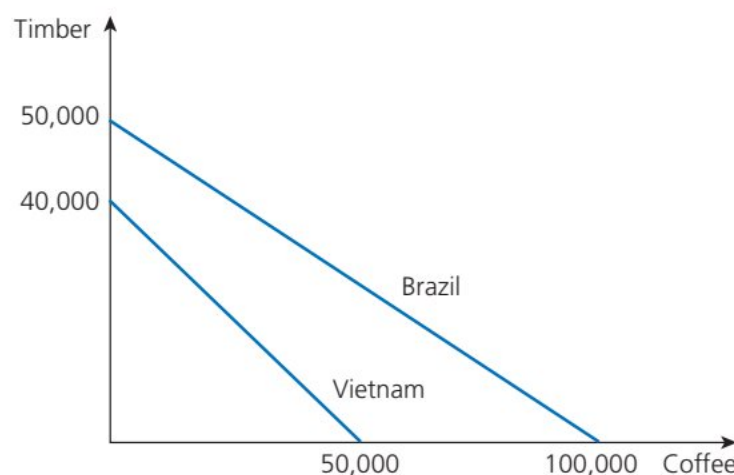
Watch out for the wording in examination questions. For example, there is a difference between the merits of *international trade* and the merits of *free trade* – they are not quite the same because not all international trade entails free trade. Thus, the merits of free trade (without any trade barriers) are greater than the benefits of international trade (which may involve some trade barriers between countries).

■ Absolute and comparative advantage (AO2, AO4) (HL only)

- A country has an **absolute advantage** if it can produce more of a good or service than another country by using the same resources (or being able to produce the same output with fewer resources).
- The theory suggests that if countries specialize in the output of what they are most efficient at producing, world output will increase and there will subsequently be gains from trade.
- A country has an absolute advantage mainly due to an abundance of factors of production. For example, Kuwait is abundant in natural gas and Madagascar has the natural climate suitable for producing vanilla.
- International specialization in the output of goods or services based on absolute advantage results in an increase in world production and consumption.
- The assumptions of the theory of comparative advantage are:
 - ☐ Costs of production are based on the number of labour hours in the production process.
 - ☐ Only two nations and two commodities are considered.
 - ☐ There is labour mobility within the country.
 - ☐ Trade deals between two countries take place only when there are gains from trade.

■ Absolute advantage: gains from trade

The gains from trade can be demonstrated using the PPC model (see Figure 27.3). Brazil's production possibility curve (PPC) shows that it can produce 100,000 units of coffee (compared to Vietnam's 50,000 units) OR 50,000 units of timber (compared to Vietnam's 40,000 units). This means that Brazil has an absolute advantage in the production of both coffee and timber.



■ **Figure 27.3** Absolute advantage and the PPC model

WORKED EXAMPLE

Suppose two countries, with the same number of resources, produce books and clothes. Also assume that both countries divide their resources equally between the production of these products. The pre-trade situation is shown below:

Country	Books ('000)	Clothes ('000)
A	1,000	500
B	750	1,500
Total output	1,750	2,000

It can be seen that Country A has an absolute advantage in producing books (1 million units compared to Country B's 0.75 million units), while Country B has an absolute advantage in the output of clothes (1.5 million units compared to Country A's 0.5 million units).

Suppose both countries decide to specialize completely, based on their respective absolute advantage. This means Country A gives up 0.5 million units of clothes (to focus on producing books) and Country B gives up 0.75 million units of books (to specialize in the production of clothes). This creates an increase in total output of both products:

Country	Books ('000)	Clothes ('000)
A	2,000	0
B	0	3,000
Total output	2,000	3,000
Gains from trade	250	1,000

If the two countries now trade 800,000 units of their surplus with each other, the post-trade situation will look like this:

Country	Books ('000)	Clothes ('000)
A	1,200	800
B	800	2,200
Total output	2,000	3,000

Through international trade, Country A has 200,000 extra units of books and 300,000 additional units of clothes. Similarly, Country B has 50,000 more units of books and 700,000 units of clothes.

Therefore, total output increases via countries specializing in the output of the product in which they hold an absolute advantage and then engaging in international trade.

Comparative advantage (AO2, AO4)

- **Comparative advantage** exists when a country can produce a given amount of output at a lower opportunity cost than another country. This means the country gives up fewer resources than other nations in order to produce the product.
- The theory suggests that countries should specialize in the output of goods and services based on what they are able to produce at a relatively lower opportunity cost.
- The theory differs from that of absolute advantage because it suggests that countries would benefit from producing and trading products that have a comparatively lower opportunity cost, even if one of the trading partners has an absolute advantage in the output of both products.
- With reference to Figure 27.3 (also depicted in the data below), it can be seen that Brazil has an absolute advantage in the output of both coffee and timber.

Country	Timber (units)	Coffee (units)	Opportunity cost
Brazil	50,000	100,000	1:2
Vietnam	40,000	50,000	1:1.25

- However, a comparative advantage exists for both Brazil and Vietnam:
 - Brazil's opportunity cost of producing timber is 2 units of coffee, whereas Vietnam's opportunity cost is only 1.25 units of coffee. Hence, it makes economic sense for Brazil to specialize in the output of coffee.
 - Similarly, Vietnam's opportunity cost of producing coffee is 0.8 units of timber, but it is only 0.5 for Brazil. Hence it is cheaper for Brazil to give up producing timber and for Vietnam to specialize in the output of timber.

■ Sources of comparative advantage

Sources of comparative advantage include differences in: (1) factor endowments, (2) levels of technology, (3) investment in research and development (R&D), (4) low and stable rate of inflation (price stability), and (5) favourable exchange rate movement.

- **Factor endowments** – Countries that are well resourced with high-quality factors of production enjoy competitive advantages. For example, Saudi Arabia, Kuwait, Russia and the United Arab Emirates are all major oil exporting countries due to their abundance of oil.
- **Levels of technology** – Workers with access to the latest machinery and technologies will be far more productive than those using outdated techniques and substandard equipment. High-income countries have the financial capability to invest in physical capital and superior technologies, so gain comparative advantages over low-income countries that resort to exporting basic commodities for a relatively low price.
- **Investment in research and development (R&D)** – The ability to invest in R&D and to be innovative can give countries a comparative advantage. However, as comparative advantages are not static, supply-side economists argue that it is necessary for countries to invest in R&D in order to remain competitive.
- **Price stability** – The ability to stabilize prices (that is, low and stable rates of inflation) can give the economy comparative cost advantages. This is because higher prices would tend to deter foreign buyers from purchasing the country's exports, even if these may be of higher quality.
- **Exchange rate fluctuations** – A favourable change in the exchange rate will improve the relative attractiveness of exports as they become more affordable. By contrast, an appreciation of the currency or a currency revaluation can trigger a fall in the demand for exports due to prices being relatively higher.

TOP TIP!

The causes or sources of comparative advantage can be easily remembered by using the acronym **FRIET** (as in French fries): **F**actor endowments, **R**esearch and development, **I**nflation (price stability), **E**xchange rates, and **T**echnology.

■ Limitations of the theory of comparative advantage (AO3) (HL only)

- **Static model** – The theory assumes that comparative advantage is fixed, whereas in reality it is not. For example, the UK no longer has a comparative advantage in the output of steel and coal, while Hong Kong no longer holds a comparative advantage

in textiles and toy manufacturing. Comparative advantages are dynamic in nature so can move between countries over time.

- **Barriers to trade** – The theory assumes that there are no barriers to international trade, although this is not necessarily the case in the real world where tariffs and quotas are imposed by countries around the world, despite the benefits of international trade.
- **Disparities are ignored** – The theory ignores regional and local disparities of the relative gains from trade, which are not enjoyed equally within the economy.
- **Transportation costs are ignored** – In the real world, high transportation costs can distort the calculation of comparative advantage.
- **Immobility of factor resources** – It is also assumed there is perfect occupational mobility of factors of production so they can be switched between different industries without any loss of efficiency, as shown in the PPC model. However, this contradicts the idea of increased opportunity costs of greater levels of production.
- **Imperfect knowledge** – Comparative advantage theory assumes perfect knowledge of pricing information available to both consumers and producers. Owing to complications such as exchange rate fluctuations and relative inflation rates in different countries, it can be difficult for consumers and producers to have perfect knowledge of prices of exports and imports at any point in time.

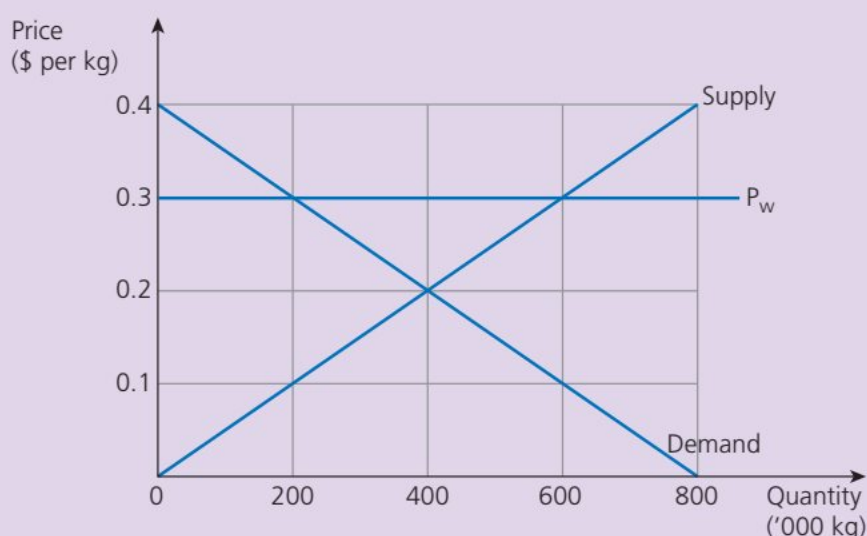
TOP TIP!

When evaluating the real-world relevance and limitations of comparative advantage, make sure you: (1) discuss the shortcomings of the assumptions of the theory of comparative advantage, and (2) consider the arguments for and against international trade.

PAPER 3 EXAM PRACTICE QUESTION 27.1 (HL ONLY)

The diagram below illustrates the market for mangoes in Country X, a low-income nation that specializes in the export of mangoes. The monthly domestic demand and supply curves are shown, along with the world price (P_w) at \$0.3 per kg.

- a Calculate the value of mangoes exported from Country X. [2 marks]
- b Calculate the social (community) surplus earned by stakeholders in the market for mangoes in Country X under conditions of free trade. [3 marks]
- c Calculate the total value of domestic consumption of mangoes in Country X under conditions of free trade. [2 marks]



PAPER 3 EXAM PRACTICE QUESTION 27.2 (HL ONLY)

Refer to the following data and answer the questions that follow.

	Automobiles (units)	Boats (units)
Country X	8,000	0
	0	10,000
Country Y	4,000	0
	0	8,000

- a** Identify which country has the absolute advantage in the production of boats. [1 mark]
- b** Explain which country should specialize in the production of automobiles. [2 marks]
- c** Calculate the opportunity cost for Country Y of producing 8 additional units of automobiles. [2 marks]

PAPER 3 EXAM PRACTICE QUESTION 27.3 (HL ONLY)

Using the production possibilities in the table below, sketch an appropriate diagram to explain which country should specialize in the production of socks and which country should specialize in the output of shoes. [4 marks]

Country	Socks (millions)	Shoes (millions)
A	1,500	600
B	2,000	500

Chapter summary

- International trade is the exchange of capital, goods and services between different countries. It involves the sale of exports (goods and services sold to overseas buyers) and imports (foreign goods and services bought by domestic households and firms).
- The benefits of international trade tend to exceed the opportunity costs. These benefits include: (1) increased competition, (2) lower prices, (3) greater choice, (4) acquisition of resources, (5) more foreign exchange earnings, (6) access to larger markets, (7) economies of scale, (8) more efficient resource allocation, and (9) more efficient production.
- A country has an absolute advantage if it can produce more of a particular product than another country by using the same number of resources (or is able to produce the same amount of a good or service by using fewer resources). (HL only)
- A comparative advantage exists if a country can produce a given amount of output at a lower opportunity cost than another country, that is, it gives up fewer resources than other countries to produce a certain good or service. (HL only)
- Sources of comparative advantage (reasons why a country may be able to produce goods and services at a lower opportunity cost than its trading partners) include: (1) factor endowments, (2) levels of technology, (3) investment in research and development (R&D), (4) low and stable inflation (price stability), and (5) favourable exchange rate fluctuations. (HL only)
- The theory of comparative advantage has several limitations including: (1) it being a static model, (2) countries distorting comparative advantages by imposing trade barriers such as tariffs and quotas, (3) not accounting for transportation costs, and (4) the unrealistic assumption of consumers and the producers having perfect knowledge of pricing information. (HL only)

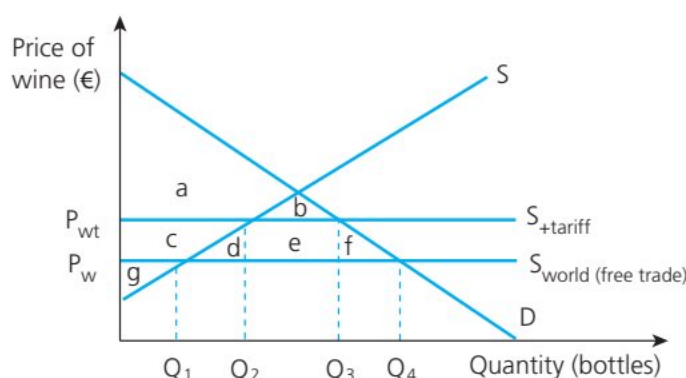
Types of trade protection

■ Types of trade protection (AO3, AO4)

- **Protection** (or **trade protection**) refers to the deliberate attempt by a government to safeguard domestic producers from foreign competition by use of barriers to trade.
- Barriers to trade are obstacles to international trade, imposed by a government to safeguard national interests by reducing the competitiveness of foreign firms.
- There are four main types of trade protection: (1) tariffs, (2) quotas, (3) subsidy (export subsidy), and (4) administrative barriers.
- Many governments are concerned that free trade with countries that have a comparative advantage may, in the short run, lead to lower revenues for domestic firms. In the long run, this may result in shutting down domestic industries that are less efficient than their foreign counterparts. As this can cause unemployment and negative economic growth, there is pressure placed on the government to protect the country from foreign competition.

■ Tariffs (AO3, AO4)

- **Tariffs** are a specific indirect tax imposed on imported goods and services. They are the most commonly used form of trade protection.
- Tariffs increase the costs of production for foreign firms, which subsequently increases the price of targeted goods or services and makes domestically produced products more competitive.



■ **Figure 28.1** The effects of tariffs on the market for wine in Cyprus

- The following analysis relates to Figure 28.1, which shows the effects of tariffs on the market for wine in Cyprus:

- The demand (D) and supply (S) curves represent the domestic market for wine.
- Owing to competition and comparative advantages of foreign producers, the world can supply wine (S_{world}) at a price of P_w .
- Cypriot wine producers are willing to supply only Q_1 bottles of wine at a price of P_w . Hence there is only a small amount of domestic producer surplus (area g).

- At a price of P_w , the domestic demand for wine is Q_4 . This means that the difference ($Q_4 - Q_1$) is imported from foreign wine producers.
- Hence, the Cypriot government imposes a tariff on foreign wine, which shifts the world supply curve upwards by the amount of the tax and raising the price from P_w to P_{wt} .
- The higher price gives domestic firms an incentive to produce more wine, indicated by an expansion along the domestic supply curve from Q_1 to Q_2 .
- However, the higher price contracts domestic demand from Q_4 to Q_3 . This causes the amount of imported wine to fall from $Q_4 - Q_1$ to $Q_3 - Q_2$.

■ Effects of tariffs on markets and stakeholders

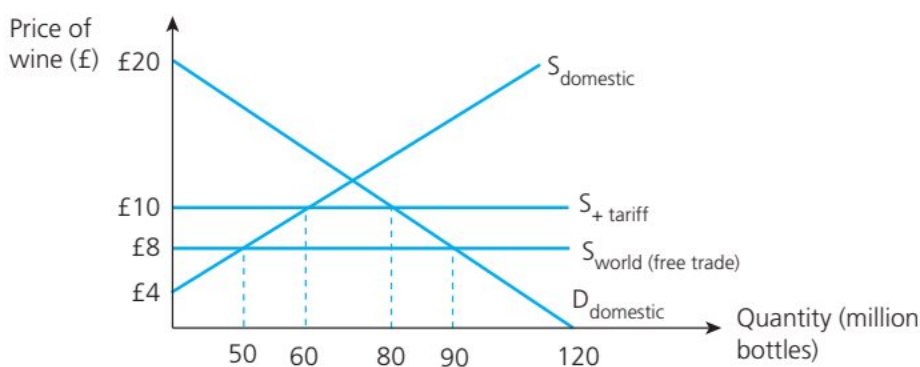
- **Consumers** – There is a loss of consumer surplus as consumers have to pay a higher price ($P_{wt} > P_w$) and have less choice of imported wines following the imposition

of the tariff. At the world price of P_w , consumer surplus is shown by the area $a+b+c+d+e+f$ but this drops to area $a+b$ after the imposition of the tariff.

- **Domestic producers** – As a result of the tariff, domestic producers benefit from an increase in producer surplus, shown by the area g rising to area $c+g$. They also gain from an increase in sales revenue as domestic demand expands from Q_1 to Q_2 .
- **Foreign producers** – Importers lose from the tariff, which may remove any comparative advantage they have. Foreign producers are likely to have to compete on quality or exit the market if they are unable to compete on price.
- **Governments** – The Cypriot government receives tax revenue from the tariff, represented by the area e in Figure 28.1. The tariff also helps the Cypriot government to protect jobs in the domestic wine industry. However, the government could face action from the World Trade Organization (which promotes freer and fairer trade between nations). Also, foreign governments may well retaliate with reciprocal tariffs being imposed on wines from Cyprus.
- **Market efficiency and social welfare – Social surplus** (or **community surplus**) is the sum of producer and consumer surplus in a specific market. It is used to demonstrate the level of efficiency in a market.
 - Prior to the imposition of the tariff, consumer surplus is shown by the area $a+b+c+d+e+f$. Producer surplus is shown by area g . Hence social surplus is represented by the area $a+b+c+d+e+f+g$.
 - After the imposition of the tariff, consumer surplus is lowered (as the price of wine increases from P_w to P_{wt}), as shown by the area $a+b$. Domestic wine makers see an increase in producer surplus from area g to area $c+g$. This results in a new (smaller) social surplus of area $a+b+c+g$.
 - The government gains area e in the form of tariff (tax) revenues.
 - This leaves areas $d+f$ as a social welfare loss, that is, it represents inefficiency in the market as a result of the tariff. Area d is the additional output of inefficient domestic firms that are protected by the tariff. Area f represents the loss to consumers due to the higher price as a result of the tariff.

■ Calculating the effects of tariffs (AO4) (HL only)

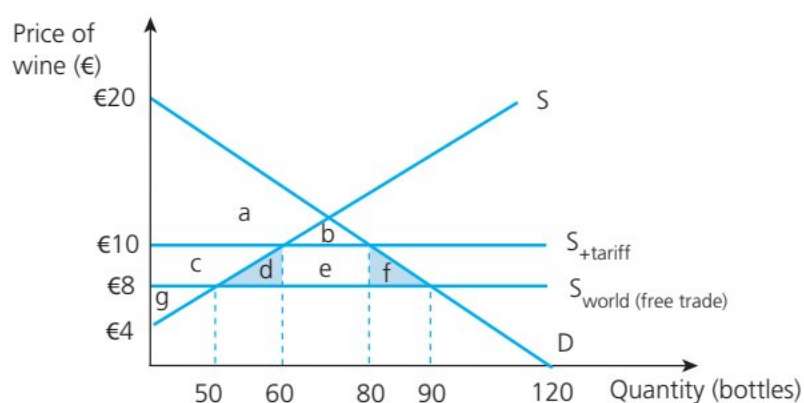
The following analysis refers to Figure 28.2, which shows the market for wine in Cyprus.



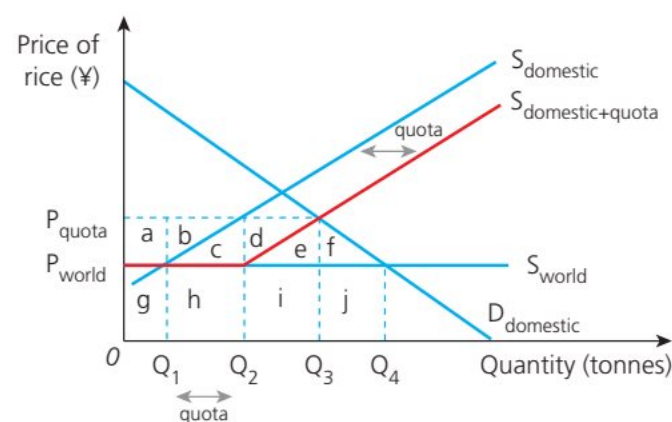
■ **Figure 28.2** Calculating the effects of tariffs on stakeholders

- **Consumers** – Consumers spend more on wine but experience a loss of consumer surplus due to the higher price following the imposition of the tariff.
 - Pre-tariff consumer expenditure is $£8 \times 90\text{m} = £720\text{m}$.
 - Post-tariff consumer expenditure is $£10 \times 80\text{m} = £800\text{m}$.
 - This means consumers spend an extra $£80\text{m}$ on wine, despite demanding 10m fewer bottles of wine.
- Although consumers spend more on wine, this does not mean that producers receive this extra expenditure, as the change has been caused by the imposition of the tariff.

- Pre-tariff consumer surplus is $[(€20 - €8) \times 90\text{m}] \div 2 = €540\text{m}$.
- Post-tariff consumer surplus is $[(€20 - €10) \times 80\text{m}] \div 2 = €400\text{m}$.
- Therefore, the loss in consumer surplus is €140m.
- **Producers** – Domestic producers of wine in Cyprus experience an increase in their revenue and a gain in producer surplus. Foreign wine producers exporting to Cyprus experience a fall in their revenue due to the tariff.
 - Pre-tariff domestic producer revenue is $€8 \times 50\text{m} = €400\text{m}$.
 - Post-tariff domestic producer revenue is $€10 \times 60\text{m} = €600\text{m}$.
 - Hence, the change in domestic producer revenue is an extra €200m.
 - Pre-tariff foreign producer revenue is $€8 \times (90\text{m} - 50\text{m}) = €320\text{m}$.
 - Post-tariff foreign producer revenue is $€10 \times (80\text{m} - 60\text{m}) = €200\text{m}$.
 - Hence, foreign producers lose €120m in revenues following the imposition of the tariff.
 - Pre-tariff producer surplus is $[(€8 - €4) \times 50\text{m}] \div 2 = €100\text{m}$.
 - Post-tariff producer surplus is $[(€10 - €4) \times 60\text{m}] \div 2 = €180\text{m}$.
 - Therefore, producer surplus for domestic firms increases by €80m.
- **Government** – The Cypriot government receives tariff revenues from foreign firms selling their wines in Cyprus.
 - Pre-tariff government revenue is zero.
 - Pre-tariff government revenue is $(€10 - €8) \times (80\text{m} - 60\text{m}) = €2 \times 20\text{m} = €40\text{m}$.
- **Welfare (society)** – While there are winners and losers from the imposition of a tariff, there is an overall social or welfare loss (see Figure 28.3):
 - Consumer surplus falls by the area $c+d+e+f$.
 - Domestic producer surplus increases by the area c .
 - The government earns area e .
 - Hence, area $d+f$ represents the welfare loss to the society.



■ Figure 28.3 Welfare loss from the imposition of a tariff



■ Figure 28.4 The effects of a quota on rice in Japan

■ Quotas (AO3, AO4)

- **Quotas** are quantitative limits on the imports into a country. They restrict the supply of a good or service at the expense of foreign firms.
- As a result of a quota, the fall in supply (caused by the reduction in imports) leads to an increase in the price of the product (see Figure 28.4).
- In Figure 28.4, prior to Japan's imposition of a quota on rice, the domestic quantity demanded is Q_4 at the world price of P_{world} , whereas the domestic supply is only Q_1 . This means the initial volume of imports is $Q_4 - Q_1$.
- The introduction of the quota creates scarcity in the market, causing an increase in the price of rice from P_{world} to P_{quota} , and contracting demand to Q_3 .
- Even though domestic supply of rice increases, the reduction in imports means it is no longer possible to import rice below the price of P_{quota} . The domestic supply curve shifts outwards by the amount of the quota, from S_{domestic} to $S_{\text{domestic}+\text{quota}}$. Domestic supply increases from Q_1 to $Q_1 + (Q_3 - Q_2)$. Importers make up the rest of the supply, based on the quota, that is, $Q_2 - Q_1$.

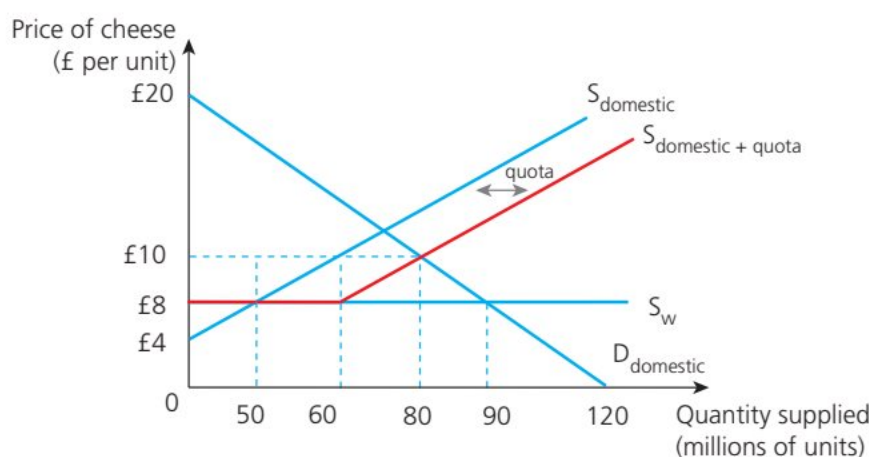
■ Effects of quotas on different stakeholders

- **Consumers** – Japanese consumers will lose from the quota due to less choice and higher prices following the imposition of the quota on rice.
 - The quota reduces rice supply in Japan and allows domestic producers to charge higher prices.
 - Consumers pay more for their rice, as price increases from P_{world} to P_{quota} . The loss in consumer surplus due to the higher price is shown by the area $a+b+c+d+e+f$.
 - There is a fall in rice imports, which leads to a reduction in choice for consumers.
 - Consumer expenditure on rice in Japan increases from area g to $a+g+d+e+i$.
- **Producers** – Domestic rice producers gain from the imposition of a quota. It raises the revenue for domestic rice producers, based on the higher spending on domestic rice.
 - The revenue received by Japanese rice producers increases from area g to area $a+g+d+e+i$.
 - The higher price also means that domestic producer surplus increases by the area $a+b$.
 - Foreign rice producers lose out due to a reduction in their export revenues as the quota restricts their supply. As they receive a higher price for supplying rice, producer surplus increases by the area $c+d$, but the reduction in output due to the quota ($Q_2 - Q_1$) leads to lower revenues from area $h+i+j$ to area $b+c+h$.
 - Therefore, foreign producers may need to refocus their efforts on selling rice to other countries and/or to concentrate on expanding in their own domestic market.
- **Government** – There are no direct revenues for the Japanese government from the imposition of a quota. In reality, this may involve the sale of import licences, so the government is compensated from the sale of these licences. It is also likely that there are some enforcement costs associated with the imposition of a quota. However, the financial costs and benefits of a quota for the government are not illustrated in the quota diagram.

- **Welfare (society)** – Although domestic producers are made better off from the imposition of a quota, this comes at the expense of efficiency in the market, illustrated by a welfare loss in the quota diagram.
 - The welfare loss is due to inefficient production (caused by lower levels of competition and fewer choices for domestic consumers) and higher prices for rice, shown by the triangular area $e+f$.
 - Triangular area e represents the cost of inefficient domestic rice producers that enter the market but would not be competitive enough under normal market conditions without government protectionist measures.
 - Triangular area f represents the loss of consumer surplus as fewer people are able to purchase rice at the higher price.
 - Hence, in terms of social welfare and economic efficiency in the Japanese rice market, society is made worse off following the imposition of a quota.

■ Calculating the effects of quotas (A04) (HL only)

The following analysis refers to Figure 28.5, which shows the market for cheese in the UK.



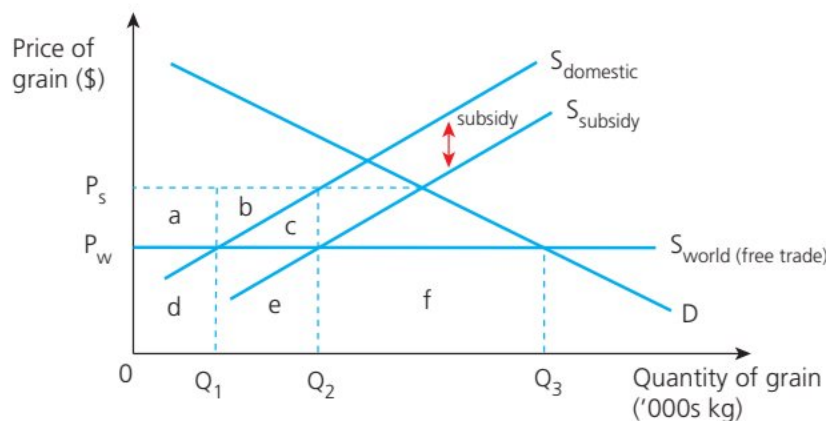
■ **Figure 28.5** The effect of a 10-million-unit cheese quota on stakeholders

- **Consumers** – As a result of the 10-million-unit quota on imported cheese, British consumers will experience an increase in price from £8 to £10 per unit. This contracts quantity demanded from 90 million units to 80 million units of cheese.
 - Pre-quota consumer expenditure = Price \times Quantity demanded = £8 \times 90m = £720m.
 - Post-quota consumer expenditure = £10 \times 80m = £800m.
 - Hence, the change in consumer expenditure = £800m – £720m = +£80m.
- **Producers** – The quota means that domestic firms will be able to sell their cheese at a higher price on the market, so more firms will be willing and able to provide cheese.
 - Pre-quota producer revenue = Price \times Quantity = £8 \times 50m = £400m.
 - Post-quota domestic supply = 50m + (80m – 60m) = 70m.
 - Post-quota producer revenue = £8 \times 70m = £560m.
 - Change in producer revenue = £560m – £400m = +£160m.
- **Foreign producers** – The quota disadvantages foreign producers as follows:
 - Pre-quota foreign supply = 90m – 50m = 40m.
 - Pre-quota foreign producer revenue = £8 \times 40m = £320m.
 - Post-quota foreign supply = 60m – 50m = 10m (a loss of 30m units overall).
 - Post-quota foreign producer revenue = £10 \times 10m = £100m.
 - Change in foreign producer revenue = £100m – £320m = –£220m.
- **Welfare loss** – Society loses from the higher price charged for cheese (from £8 to £10) and the fall in quantity traded (from 90m to 80m units).

- The welfare loss caused by inefficient domestic producers = $[(80\text{m} - 60\text{m}) \times (£10 - £8) \div 2] = (20\text{m} \times £2) \div 2 = £20\text{m}$.
- The welfare loss caused by the fall in the amount of cheese available = $[(90\text{m} - 80\text{m}) \times (£10 - £8) \div 2] = (10\text{m} \times £2) \div 2 = £10\text{m}$.
- Hence, the net welfare loss = $£20\text{m} + £10\text{m} = £30\text{m}$.

■ Subsidies (AO3, AO4)

- Subsidies are a form of financial assistance from the government to local firms that lowers their costs of production. This enables them to compete more favourably against foreign rivals (see Figure 28.6).
- There are two types of subsidies that can be used to protect domestic firms and industries:
 - **Production subsidies** are the most common form of trade subsidies, used to reduce the production costs of domestic firms.
 - **Export subsidies** are less wide-ranging as they are targeted at protecting specific export-orientated firms.



■ **Figure 28.6** The effects of production subsidies

- Prior to the introduction of the production subsidy, domestic grain producers were only willing and able to supply a quantity of Q_1 at a world price of P_w despite the quantity demanded being Q_3 .
- The introduction of the subsidy shifts the domestic supply curve downwards by the value of the subsidy (P_s to P_w). This intersects the world price (P_w) at a quantity of Q_2 .
- Domestic firms, while selling at the world price, actually receive a price equivalent to P_s due to the subsidy. This reduces grain imports from $Q_3 - Q_1$ to $Q_3 - Q_2$. In other words, domestic supply of grain increases from $Q_2 - Q_1$.
- Note that consumers continue to buy Q_3 units of grain at the price of P_w before and after the subsidy (as the subsidy to support domestic grain producers does not change the world price).

■ The effects of subsidies on stakeholders

The analysis below refers to Figure 28.6, which represents a production subsidy to domestic producers of grain in the USA.

- **Consumers** – The producer subsidy does not change consumer demand for grain in the USA and it does not change the price (which remains at the world price, P_w). Hence, Q_3 is still the quantity traded.
 - However, consumers buy more domestic grain. Whether they gain or lose from this depends on the relative quality of foreign produced grain relative to the grain supplied by US producers.
 - Consumer expenditure before and after the subsidy = $P_w \times Q_3$ = area $d+e+f$.
 - As there is no change in the price paid by consumers (P_w) or the amount they purchase (Q_3), there is no change in consumer surplus.
- **Producers** – Domestic producers gain from the subsidy as their production costs are subsidized, so they are able to supply more.

- Domestic supply increases from Q_1 to Q_2 . Domestic firms would still sell their grain at the world price of P_w after receiving the subsidy.
- Domestic producer revenue before the subsidy = $P_w \times Q_1 = \text{area } d$.
- Domestic producer revenue after the subsidy = $P_w \times Q_3 = \text{area } a+d+b+c+e$.
- **Foreign producers** – Trade protection of domestic firms means that foreign producers will lose out.
 - Prior to trade protection, foreign producers supplied $Q_3 - Q_1$ units of grain. Their revenue under free trade = $P_w \times (Q_3 - Q_1) = \text{area } e+f$.
 - The subsidy for US grain producers reduces the amount of imports to $Q_3 - Q_2$. This reduces foreign producer revenue to $P_w \times (Q_3 - Q_2) = \text{area } f$.
- **Government** – There is a negative impact on the government's budget due to the expenditure on production subsidies for US grain producers.
 - Government expenditure on the subsidy = $(P_s - P_w) \times Q_2 = \text{area } a+b+c$.
 - The government might need to increase taxes in order to subsidize domestic producers. Taxpayers are therefore made worse off.
 - There is also an opportunity cost of using this money in terms of other areas of government expenditure.
- **Welfare (society)** – The producer subsidy will attract new but inefficient domestic producers to enter the industry or encourage existing producers to expand their production beyond what would be economically efficient without the subsidy.
 - This means that the subsidy encourages inefficient output from domestic firms, so this generates a welfare loss.
 - The triangular area c represents the welfare loss created by the subsidized units of inefficient production by domestic firms ($Q_2 - Q_1$) and the value of the subsidy ($P_s - P_w$).

TOP TIP!

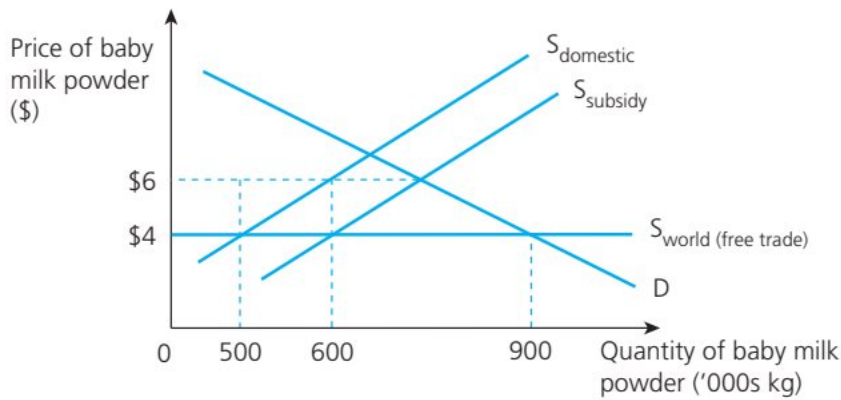
Unlike subsidies studied in Microeconomics where prices are reduced, producer subsidies as a form of trade protection for domestic firms do not result in a change in the world price paid by consumers or the amount that they purchase (P_w and Q_3 respectively in Figure 28.7). Hence, there is no change in the welfare for consumers, unless the quality of the domestic product is different. However, quality cannot be reflected in a subsidy diagram.

TOP TIP!

Students often refer to welfare loss in their trade protection diagrams but fail to explain this clearly. Make sure you understand *how* protectionist measures distort market forces and lead to an inefficient allocation (or misallocation) of resources. Protecting inefficient or uncompetitive domestic firms in an artificial way is costly and reduces choice for consumers, leading to a net loss to society.

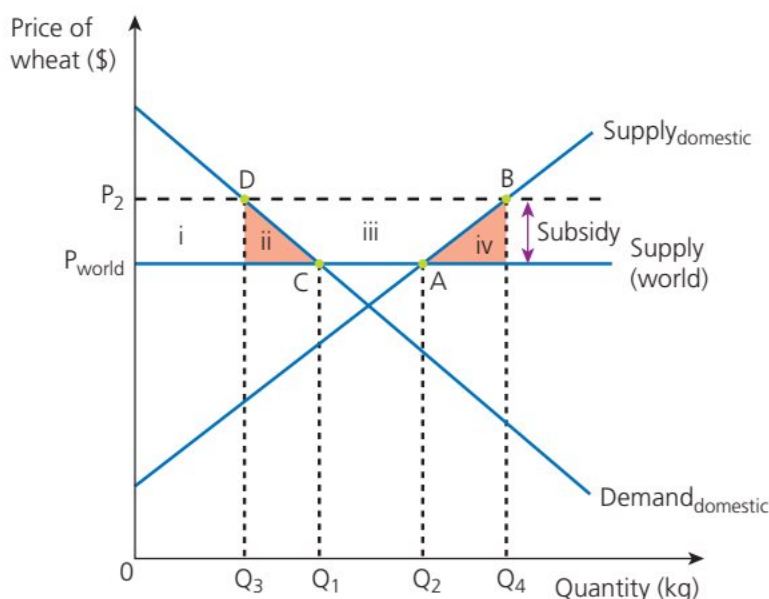
■ Calculating the effects of subsidies (AO4) (HL only)

The following analysis relates to Figure 28.7, which shows production subsidies for domestic producers of baby milk powder.



■ **Figure 28.7** Calculating the effects of production subsidies

- **Consumers** – As a result of a \$2 per unit producer subsidy, domestic consumers are not impacted as the price that they were paying before the subsidy (\$4) remains the same after the subsidy paid to domestic firms.
 - Hence, there is no change in consumer expenditure on baby milk powder.
 - Consumer expenditure = Price \times Quantity demanded = \$4 \times 900,000 = \$3.6m.
- **Producers** – The \$2 per unit producer subsidy means that domestic firms will effectively receive a higher price of \$6 (that is, \$4 + \$2) for their baby milk powder and expand their production from 500,000 kg to 600,000 kg.
 - Pre-subsidy producer revenue = Price \times Quantity = \$4 \times 500,000 = \$2m.
 - Post-subsidy producer revenue = Price \times Quantity = \$6 \times 600,000 = \$3.6m.
 - Hence, the change in producer revenue = \$3.6m – \$2m = +\$1.6m.
- **Foreign producers** – The subsidy for domestic producers makes it harder for foreign firms to compete.
 - Pre-subsidy foreign producer revenue = \$4 \times (900,000 – 500,000) = \$1.6m
 - Post-subsidy foreign producer revenue = \$4 \times (900,000 – 600,000) = \$1.2m
 - Change in foreign producer revenue = \$1.6m – \$1.2m = –\$400,000.
- **Government** – The government's \$2 per unit subsidy for domestic firms will cost taxpayers.
 - Government expenditure = Subsidy \times Post-subsidy domestic supply
 - Hence, the subsidy costs (\$6 – \$4) \times 600,000 = \$1.2m.
- An alternative to the production subsidy diagram is the export subsidy diagram.
- With reference to Figure 28.8 below, at the world price of P_{world} , domestic demand for wheat is Q_1 whereas the US produces Q_2 kilograms of wheat. The excess supply ($Q_2 - Q_1$) is exported.
- An export subsidy encourages US wheat producers to sell their goods to other nations such as Mexico. This causes an increase in the supply of wheat and a



■ **Figure 28.8** The export subsidy diagram

subsequent fall in the price of wheat in Mexico. However, the higher wheat supply to Mexico will reduce wheat supply in the US market and cause a subsequent rise in the domestic price (by the amount of the export subsidy, from P_{world} to P_2).

- The per unit export subsidy effectively increases the price (to P_2), so domestic demand contracts from Q_1 to Q_3 . At the same time, the higher price expands domestic supply from Q_2 to Q_4 . The higher output from domestic suppliers ($Q_4 - Q_2$) is now exported.
- Hence, the export subsidy increases US exports of wheat from $Q_2 - Q_1$ to $Q_4 - Q_3$.

- Note that with an export subsidy, consumers pay a higher price (P_2) compared with a production subsidy where the price paid remains the same. This is because US wheat producers can earn P_2 by exporting to Mexico, so are not willing to sell to domestic consumers unless they can get the same (higher) price.
- Total sales revenue for US producers increases from the area $P_{\text{world}}, A, Q_2, 0$ to area $P_2, B, Q_4, 0$.
- Export revenues increase from the area Q_2, Q_1, C, A to Q_4, Q_3, D, B .
- Prior to the export subsidy, domestic consumers spent $P_{\text{world}}, C, Q_1, 0$. This changes to $P_2, D, Q_3, 0$ after the export subsidy is applied. Whether this represents an increase or decrease in domestic consumer expenditure depends on the price elasticity of demand (PED) of the domestic demand for US wheat.
- Nevertheless, the higher price and lower quantity means domestic consumers are made worse off, represented by the loss in consumer surplus of areas i + ii.
- The higher price and greater volume of exports for domestic firms mean that producer surplus increases by the area i + ii + iii.
- The cost to the government of funding the export subsidy is areas ii + iii + iv.
- As mentioned, the gains from the export subsidy = i + ii + iii whereas the loss = i + ii. This means areas i and iii cancel each other out, leaving the triangular areas ii and iv as the welfare loss caused by higher prices and lower quantity of wheat to US consumers and the cost of funding the scheme to US taxpayers.

■ Administrative barriers (AO3)

- **Administrative barriers** are a form of trade protection to safeguard domestic firms by imposing standards and regulations on foreign firms, such as bureaucratic rules and policies.
- Governments often use administrative rules and regulations to also safeguard domestic consumers, such as strict rules regarding food safety, pollution and environmental standards, and product quality.
- Complying with administrative trade barriers increases costs of production for foreign firms, thereby giving a competitive advantage to domestic firms. This can be due to the costs of complying with strict health and safety standards or bureaucratic barriers that delay imports of foreign products.
- An extreme form of administrative barrier is the use of **embargoes**, which ban the import of specific products from a certain country or trade with that country in general. They are usually imposed following political and/or economic deadlocks. Embargoes rarely benefit domestic consumers who lose out from a lack of choice and higher prices. Trade embargoes can also trigger retaliation from other countries.

PAPER 1 EXAM PRACTICE QUESTION 28.1

Explain the economic impacts on different stakeholder groups following the imposition of a tariff.

[10 marks]

PAPER 1 EXAM PRACTICE QUESTION 28.2

Using real-world examples, evaluate the arguments for and against trade protection.

[15 marks]

PAPER 1 EXAM PRACTICE QUESTION 28.3

Explain the economic impacts on different stakeholders following the imposition of a quota.

[10 marks]

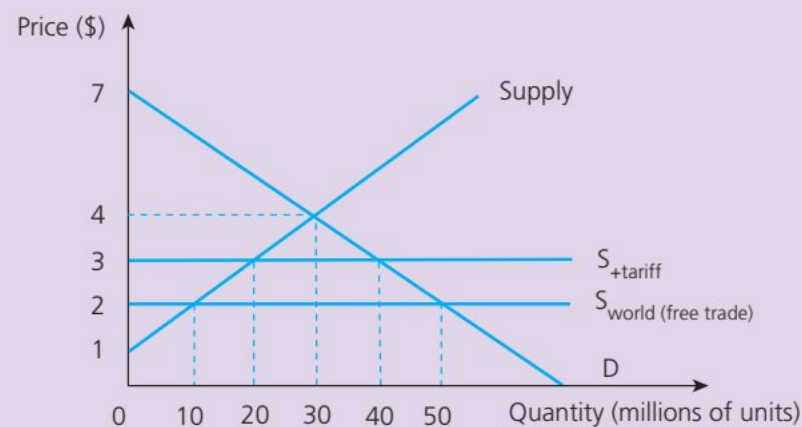
PAPER 1 EXAM PRACTICE QUESTION 28.4

Explain the economic impacts on different stakeholder groups due to a producer subsidy used to protect domestic firms.

[10 marks]

PAPER 3 EXAM PRACTICE QUESTION 28.5 (HL ONLY)

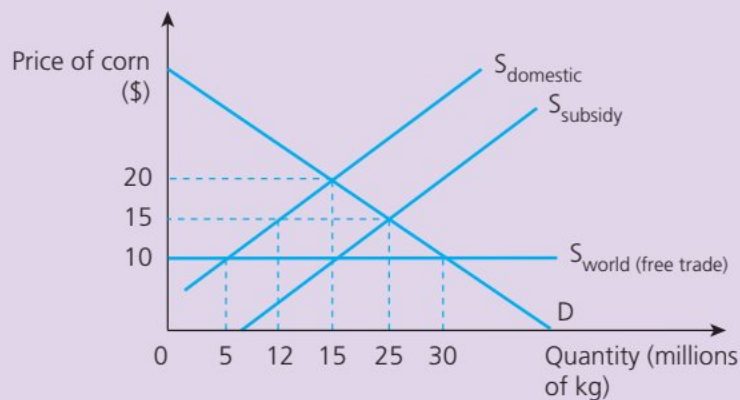
With reference to the tariff diagram below, calculate the following:



- a Consumer surplus before the imposition of the tariff. [2 marks]
- b Producer surplus before the imposition of the tariff. [2 marks]
- c Consumer surplus after the imposition of the tariff. [2 marks]
- d Producer surplus after the imposition of the tariff. [2 marks]
- e Revenue to the government after the imposition of the tariff. [2 marks]
- f The welfare loss after the imposition of the tariff. [2 marks]

PAPER 3 EXAM PRACTICE QUESTION 28.6 (HL ONLY)

With reference to the subsidy diagram below, calculate the following:



- a The cost of the subsidy to the government. [2 marks]
- b The volume of imports before government intervention. [2 marks]
- c The volume of imports after government intervention. [2 marks]
- d The total amount spent by domestic consumers under free trade. [2 marks]
- e The total amount spent by domestic consumers after the imposition of the subsidy. [2 marks]

Chapter summary

- Protectionism (trade protection) refers to deliberate attempts by a government to safeguard domestic producers from foreign competition. These barriers to trade include: (1) tariffs, (2) quotas, (3) subsidies, and (4) administrative barriers.
- Tariffs are a specific tax on imported goods and services.
 - There is a loss in consumer surplus as a result of a tariff due to higher prices and reduced choice.
 - Domestic producers benefit in the short run as they are now able to compete more effectively, albeit artificially.
 - The domestic government receives revenue from the tariff.
- Quotas are quantitative limits on the imports of a good into a country.
 - Consumer expenditure will increase as a result of the higher price caused by the quota limiting the price.
 - Domestic producers will see an increase in their producer surplus.
- A producer subsidy is a form of financial assistance for domestic firms that reduces their costs of production to help them compete against foreign firms.
 - The consumption of the good is not affected as the price remains at the world price.
 - Domestic firms gain from receiving the producer subsidy and are able to supply more.
 - The subsidy incurs an opportunity cost for the government and possibly higher taxes.
- The imposition of a tariff, quota or subsidy will cause a welfare loss to society due to the protection of inefficient domestic firms and a loss of consumer surplus.
- Administrative barriers involve the use of standards and regulations (bureaucratic rules and policies) imposed on foreign firms to protect domestic firms. Examples include strict rules regarding food safety, environmental standards and product quality.

Arguments for and against trade control/protection

- **Arguments for trade protection/advantages of trade protection (AO2)**
- **Trade protection** is the use of barriers to international trade to safeguard an economy from excessive foreign trade and competition from overseas firms.
- The interrelated arguments or reasons for trade protection are: (1) protection of infant (sunrise) industries, (2) national security, (3) health and safety, (4) environmental standards, (5) anti-dumping, (6) unfair competition, (7) balance of payments correction, (8) government revenue, (9) the protection of jobs, and (10) economically least developed country (ELDC) diversification.
- **Protection of infant industries** – Infant industries (or sunrise industries) are new or unestablished industries that have the potential to achieve a comparative advantage but are too underdeveloped to compete with large and established foreign firms. Hence, trade protection gives these firms a chance to survive and compete. However, the arguments for protecting an infant industry are often subjective and political, rather than economic.
- **National security** – Governments might choose to protect certain industries in order to safeguard the national interest due to major political conflicts or weaponized wars. Naturally, there are some industries where confidentiality is critical to the security of the nation. For example, the US government has used arms embargoes (bans) on the export of weapons and armaments to several countries, including Afghanistan, China, Indonesia, Iran and North Korea.
- **Health and safety** – Different countries have different health and safety standards for a wide range of products, such as foods, medicines and consumer electrics. A government may have concerns about the safety and quality standards of certain goods that enter the country, so uses trade protection methods to safeguard its citizens.
- **Environmental standards** – As environmental protection becomes more of a priority across the globe, governments might introduce trade protectionist measures such as tariffs and quotas on imports that are deemed to be unenvironmentally friendly. It is used to uphold the environmental standards of the nation. This also helps to protect domestic firms striving to reduce their carbon footprint and damage to the environment.
- **Anti-dumping** – Dumping is the sale of imported products by foreign firms at a price lower than the cost of production. Protection is therefore needed to prevent dumping from foreign firms. Dumping also occurs when importers overpower the market by deliberately charging prices so low that local firms are unable to compete. This often threatens the survival of domestic businesses.
- **Unfair competition** – It is natural for a government to use laws and regulations that favour domestic firms. For example, a lower corporate tax rate has effects similar to an export subsidy as domestic firms will benefit from lower production costs. Hence, other governments may believe it is justified to impose tariff on these imports.
- **Balance of payments correction** – The balance of payments is a financial record of a country's transactions with the rest of the world during the year. The demand for a currency represents credits to the balance of payments, whereas the supply of a currency represents debits. Government intervention via protectionist measures takes place to correct any imbalances in the balance of payments.

- **To generate government revenue** – Tariffs are an important source of government revenue for many countries, especially if tariffs are imposed on relatively price inelastic goods and services. This is because the increase in price (caused by the tariff) will lead to a less than proportionate change in quantity demanded, meaning that the government will be able to impose relatively large taxes without much impact on the quantity demanded.
- **To protect jobs** – If there is a lack of demand for domestic goods and services, this will eventually lead to job losses in domestic industries. The loss of jobs caused by foreign competition can have significant impacts on the standards of living of households in an economy. Therefore, the government could use trade protectionist measures to safeguard jobs and protect the livelihoods of its citizens.
- **Economically least developed country (ELDC) diversification** – An economically least developed country (ELDC) is a low-income country that faces severe structural barriers to sustainable economic development. Many ELDCs are highly specialized in the production of a small range of primary sector products, such as cocoa, coffee, copper ores, sugar and rice. Primary sector goods tend to have a low PED value and high price volatility, causing financial problems for ELDCs. Hence, trade protection is used to help ELDCs diversify their production. Essentially, trade protection is used to avoid the risks of over-specialization.

■ Arguments against trade protection/disadvantages of trade protection (AO2)

The disadvantages of trade protection include: (1) misallocation of resources, (2) retaliation, (3) increased costs, (4) higher prices, (5) less choice, (6) domestic firms lacking incentives to become more efficient, and (7) reduced export competitiveness.

- **Misallocation of resources** – Protectionist measures such as tariffs and quotas cause a loss in consumer surplus and a gain in domestic producer surplus. This is because trade protectionist measures distort market forces and comparative advantages. Hence, intervention by the government can make markets worse off.
- **Retaliation** – This means a country imposes trade barriers in response to trade restrictions being imposed on it from other countries. In the worst-case scenario, retaliation can lead to extreme and escalating reciprocal measures of trade protection imposed on each other.
- **Increased costs** – Trade protectionist measures, such as imposing tariffs and quotas on raw materials, components and capital, cause an increase in costs of production for local firms. This will tend to harm their level of profits and have detrimental impacts on the economy's growth, development and employment opportunities in the long run.
- **Higher prices** – Trade protectionist measures, such as imposing tariffs and quotas on foreign goods and services, cause an increase in prices and a loss of consumer surplus for domestic consumers. Even with producer subsidies, these cost savings just enable domestic producers to operate at a larger level of output, rather than reducing the price for consumers. The lower level of consumption for domestic consumers represents a decline in their standard of living.
- **Less choice** – Barriers to trade can lead to foreign firms exiting the local market altogether. This results in less competition in the economy and leaves domestic consumers with less choice to satisfy their needs and wants, resulting in a fall in their overall standard of living. The lack of competition may also provide less incentive for domestic firms to be competitive, productive or innovative.

- **Domestic firms lack incentive to become more efficient** – Trade protection facilitates an increase in production from relatively inefficient domestic firms. The lack of competitive exposure could lead to further inefficiencies, lower productivity and complacency of domestic firms.
- **Reduced export competitiveness** – Export competitiveness refers to the ability of domestic firms to compete successfully in overseas markets. While trade protection may increase the revenue of domestic firms, the subsequent reduction in competition can lead to fewer incentives to innovate and inefficient production. Importantly, any gains in domestic demand due to trade protection are likely to be outweighed by losses in export revenues from a lack of export competitiveness in overseas markets.

■ Free trade versus trade protection (AO3)

- The relative advantages and disadvantages of free trade and trade protection (see Table 29.1) depend on which point of view is taken. For example, domestic consumers lose from an increase in price and a loss of consumer surplus, whereas domestic producers benefit from being protected against foreign competition.
- In reality, the benefits of production for domestic producers and the consumption of domestic households and employment levels are all linked. An evaluation of the extent to which the increase in revenue to domestic firms trickles down to their employees is necessary when judging the arguments for and against trade protection.
- Arguments around unfair competition and anti-dumping as justification for trade protection may also have their limitations due to the subjective nature of what is deemed to be fair and for whom. The arguments used to justify trade protection can often be more political than economic in nature.
- While trade protection can provide short-term benefits for a country, most economists believe that it is detrimental to economic growth and development in the long-term. This view is supported by the World Trade Organization (WTO). However, as economics is a social science, it is not the responsibility of economists to make value judgements or political arguments in favour of free trade or protectionist measures.

■ **Table 29.1** Summary of reasons for and against trade protection

Reasons for trade protection	Reasons against trade protection
National security	Misallocation of resources
Health and safety	Retaliation
Environmental standards	Increased costs
Anti-dumping	Higher prices
Unfair competition	Less choice
Balance of payments correction	Firms lack incentive to be more efficient
Government revenue	Reduced export competitiveness
Protection of domestic jobs	
ELDC diversification	

TOP TIP!

When evaluating the arguments for free trade versus the arguments for trade protection, it is important to consider the varying perspectives of different stakeholders. It is also useful to consider the short-term and long-term implications of free trade and trade protection.

PAPER 1 EXAM PRACTICE QUESTION 29.1

Explain why economically least developed countries (ELDCs) might choose to use trade protection measures.

[10 marks]

PAPER 2 EXAM PRACTICE QUESTION 29.2

In early 2020, British multinational company Diageo announced that thousands of jobs could be lost due to an ongoing US–EU trade war. Diageo stated the 25 per cent tariff on imports of Scotch whisky meant that the company's profits were being hit. More than 10,000 people are directly employed in the Scotch whisky sector in Scotland, with another 40,000 jobs in the UK supported by the industry, including distillers and distributors. The figure includes around 7,000 jobs in rural areas of Scotland.

Using information from the text/data and your knowledge of economics, discuss the likely economic outcomes for the USA and Scotland from the ongoing trade war and introduction of the 25 per cent tariff.

[15 marks]

Chapter summary

- Trade protection is the use of tariff and non-tariff barriers to international trade in order to safeguard an economy from excessive foreign competition.
- The arguments used to justify trade protection can often be more political than economic in nature.
- The key arguments for trade protection (advantages of trade protection) include: (1) protection of infant (sunrise) industries, (2) national security, (3) health and safety, (4) environmental standards, (5) anti-dumping, (6) unfair competition, (7) balance of payments correction, (8) source of government revenue, (9) protection of domestic jobs, and (10) diversification for ELDCs.
- Key arguments against trade protection (disadvantages of trade protection) include: (1) misallocation of resources, (2) retaliation from trading nations, (3) increased costs of production, (4) higher prices for domestic consumers, (5) less choice for consumers, (6) domestic firms lacking incentives to become more efficient if protected, and (7) reduced export competitiveness due to inefficiencies.
- While trade protection methods may increase the revenue of domestic firms, the subsequent reduction or removal of competition from the domestic market can lead to higher costs, less innovation, and ultimately higher prices and less choice in the long run. This is likely to limit economic growth and development in the long term.

Economic integration

■ Preferential trade agreements (AO1)

- **Economic integration** refers to the process of countries becoming more interdependent and economically unified. The term was coined by Canadian economist Jacob Viner (1892–1970) in 1950.
- Economic integration intensifies competition for producers, which should lead to greater efficiency. It should also offer consumers access to a broader range of goods and services at more competitive prices, and of higher quality.
- By contrast, trade control and protection are generally detrimental to consumers in the long run because the prices of imported products are higher, and choice is limited.
- Economic integration can be achieved by **preferential trade agreements** (PTAs). These are international trade treaties between two or more countries, giving special or favourable terms and conditions of trade to member nations, such as the reduction or removal of tariffs and non-tariff barriers.
- PTAs can be categorized as: (1) bilateral trade agreements, (2) regional trade agreements, and (3) multilateral trade agreements.
- **Bilateral trade agreements** – These are the simplest form of economic integration as they involve legally binding trade contracts between two countries to reduce or remove tariffs and non-tariff barriers to trade. These PTAs have far greater flexibility than multilateral trade agreements because they involve only two countries.
- **Regional trade agreements** – These are trade agreements between two or more countries that usually belong to the same geographical region. Examples include the member states of the European Union (EU), Asia-Pacific Economic Cooperation (APEC), and Mercosur. Regional trade agreements account for the vast majority of world trade.
- **Multilateral (the World Trade Organization) trade agreements** – These are legally binding preferential trade agreements between more than two countries and/or trade blocs. They are created within the guidelines of the World Trade Organization (WTO), with the agreement and intention to reduce or remove trade barriers between member countries. Note that many regional trade agreements are also classified as multilateral trade agreements, so long as they fall under the rules and regulations of the WTO.

■ Trading blocs (AO2)

- In addition to PTAs, trading blocs are another method of economic integration. A **trading bloc** is a group of countries that agree to economic integration and freer international trade by reducing or removing trade barriers with each other.
- The trading bloc will, however, impose barriers to international trade for non-member states, such as the imposition of tariffs, to increase the price of imported products.
- Economic integration within a trading bloc will also intensify the degree of competition for firms operating in member countries. However, they can benefit from access to larger markets without trade barriers, so can gain from economies of scale.
- Trading blocs, with their varying degrees of economic integration, are categorized as: (1) free trade areas (or free trade agreements), (2) customs unions, and (3) common markets.

- **Free trade areas/agreements** – A **free trade area** (FTA) is the least economically integrated type of trading bloc, where member countries agree to remove trade barriers with each other but impose *separate* trade barriers with non-member countries. An example is the South Asian Free Trade Area (SAFTA), which is one of the largest FTAs as measured by population size, accounting for more than 1.6 billion people.
- **Customs unions** – A **customs union** consists of member countries in a trading bloc that engage in free trade with each other but impose a *common external tariff* (CET) when trading with non-member states. This means that all members of the customs union apply the *same* (common) trade barriers to non-member countries. The countries in a customs union negotiate as a united trading bloc when discussing and negotiating trade deals with non-member states. Examples include the European Union (EU) – the world's largest customs union – and the Southern African Customs Union (SACU).
- **Common markets** – A **common market** (or **single market**) is the most integrated type of trading bloc, consisting of a customs union that allows the free movement of factors of production between member countries. The agreement helps to improve the allocation of resources within and between member states. The world's largest common market is the European Economic Area (EEA).

■ Advantages of trading blocs (AO3)

- The extent to which a country benefits from being part of a trading bloc will depend on the degree of economic integration, that is, whether the country is part of a FTA, customs union or common market.
- The advantages of being a member of a trading bloc include: (1) trade creation (HL only), (2) economies of scale, (3) greater employment opportunities, (4) stronger bargaining power in multilateral negotiations, and (5) greater political stability and co-operation.
- **Trade creation (HL only)** – **Trade creation** occurs when trade shifts from higher-cost producers outside a trading bloc to lower-cost producers within the bloc due to the removal of trade barriers. For example, as members of a FTA agree to remove or reduce trade barriers between themselves, this creates new trade for lower priced products from within the group.
- **Access to larger markets and the potential for economies of scale** – Access to larger markets in a trading bloc offers member countries the potential to gain from economies of scale. Membership of a trading bloc enables multinational corporations (MNCs) to locate in and/or export to member countries without trade restrictions and to benefit from potential economies of scale. Consumers can also gain from the increased competition, which brings about additional choice and more competitive prices.
- **Greater employment opportunities** – A greater degree of economic integration tends to create economic growth and therefore more job opportunities. For example, with greater freedom of movement of labour within a common market, there are more employment opportunities within the trading bloc.
- **Stronger bargaining power in multilateral negotiations** – Membership of a trading bloc allows for stronger bargaining power in multilateral trade negotiations. In particular, low-income countries can benefit from the expertise and support of larger, more economically empowered nations during such negotiations.

- **Greater political stability and co-operation** – Through greater trade and employment opportunities, member countries of a trading bloc can benefit from higher levels of output, growth and development. This encourages member states to co-operate in a harmonious way to tackle macroeconomic issues. Hence, membership of a trading bloc helps to promote greater political stability and co-operation.

■ Disadvantages of trading blocs (AO3)

The disadvantages of being a member of a trading bloc include: (1) trade diversion (HL only), (2) the loss of sovereignty, and (3) challenges to multilateral trading negotiations.

- **Trade diversion (HL only)** – Trade diversion occurs when trade shifts from lower-cost countries from outside of a trading bloc to higher-cost countries within the bloc, under the terms and conditions of the trade bloc agreement. This is undesirable and inefficient as it concentrates production in member countries with a higher opportunity cost and lower comparative advantage. Hence, consumers tend to lose out from trade diversion as they pay higher prices for goods and services from less efficient countries.
- **Loss of sovereignty** – Economic integration causes some loss of national economic sovereignty (economic power and independence), especially in the case of common markets. For example, trading blocs might impose stricter environmental legislation and labour laws. Detrimental changes in the economic conditions of any member country (such as inflationary pressures or a recession) are likely to affect the economic performance and prosperity of all member states in the trade bloc without any individual government having the autonomy to adjust their own policies accordingly.
- **Challenges to multilateral trading negotiations** – Multilateral trade agreements can be overly complex and inflexible, especially when many countries are involved, possibly in different regions. Differences in national or regional cultures, political systems and time zones can make trade negotiations far more complicated than bilateral trade deals.

■ Monetary union (AO2)

- **Monetary union** refers to the monetary system in a common market that requires, as part of economic integration, the convergence of monetary policy that is governed by a common central bank in a highly economically integrated trading bloc.
- To achieve monetary union, member countries of the common market must first agree to permanently fix their exchange rates, thereby effectively choosing to use a common currency that is governed by a common monetary authority, such as the European Central Bank (ECB). For full monetary union, a single (common) currency is used by all member countries.
- An example of monetary union is the European Union's eurozone nations that use the euro as their common currency.
- It requires convergence of interest rates within the single market, so member states do not have the autonomy or flexibility to exercise their own monetary policy.

■ **Table 30.1** Summary of the different stages of economic integration

Category	No internal trade barriers	Common external tariff	Factor mobility	Common currency
Free trade area	✓			
Customs union	✓	✓		
Common market	✓	✓	✓	
Monetary union	✓	✓	✓	✓

■ Advantages of monetary union (HL only) (A03)

- **Price transparency** – There is greater knowledge about prices as a single currency in the monetary union makes price comparisons far easier. Households, firms and tourists can easily compare the prices of goods and services across different member states without currency conversions or dealing with fluctuations in the exchange rate.
- **Exchange rate certainty** – As a common currency is used within the monetary union there is exchange rate certainty, which encourages more trade between member countries within the trading bloc.
- **Increased trade** – A greater degree of trade will occur between members of the monetary union due to the preferential trade agreements and the confidence in the use of a common currency. This stimulates growth and job opportunities in the long term.
- **Increased cross-border investments** – The use of a common currency is likely to attract more foreign direct investment (FDI) between members of a monetary union as well as more inward investments from non-member countries due to the removed risks associated with exchange rate fluctuations. Again, this will have a positive impact on growth and employment.
- **Lower transactions costs** – The use of a common currency eliminates transactions costs between trading nations as there is no need for member states of the monetary union to exchange foreign currencies.

TOP TIP!

The advantages of monetary union can be remembered by the acronym **PETIT** (which means 'small' in French): **P**rice transparency, **E**xchange rate certainty, **T**rade, **I**nternational (FDI) and **T**ransactions costs.

TOP TIP!

According to the OECD, FDI takes place if an investor in one economy owns at least 10 per cent of the shares or voting rights in an enterprise located in another economy.

■ Disadvantages of monetary union (HL only) (A03)

- **Loss of economic sovereignty** – Being part of a monetary union means giving up the freedom and flexibility to adjust domestic economic policies because member countries are bound by free trade agreements with each other. For example, a country with relatively high unemployment cannot reduce interest rates to stimulate its economy as this is governed by the central bank of the monetary union.
- **Loss of exchange rate flexibility** – Members of a monetary union are also deprived of exercising their own exchange rate policy. For example, member states do not have the autonomy to adjust their own exchange rate during a recession or to combat a balance of payments deficit.

- **Asymmetric impacts** – Similarly, the actions taken by the central bank in a monetary union will have asymmetric impacts on different countries due to their unique and varying circumstances. For example, contrasting rates of inflation and unemployment in Greece and Germany mean that a common monetary policy implemented by the European Central Bank might not work for either country.
- **Convergence costs** – There are high conversion costs involved in establishing a monetary union. For example, when members of the EU's eurozone permanently converted to using the euro as their single currency on 1 January 2002, convergence costs included printing the new currency, getting rid of the old currencies, updating price lists and menus, adjusting software for bank accounts and stock market investments, converting vending machines and car parking meters, and so on. There were also set-up costs associated with the European Central Bank. The high convergence cost was one reason why some countries such as Denmark, Hungary and Sweden were unable or unwilling to join the eurozone.

■ The World Trade Organization (WTO) (AO2)

- The **World Trade Organization** (WTO) is a global organization that exists to promote trade liberalization, oversee multilateral trade agreements (free trade agreements between multiple countries), and resolve trade disputes between member countries. The WTO consists of 164 member states and employs more than 640 full-time staff, including lawyers, economists, statisticians and communications experts.
- The WTO originated from trade negotiations that followed the Second World War when the General Agreement on Tariffs and Trade (GATT) was established in order to rebuild the world's economies and to promote economic co-operation and political harmony.
- The GATT was eventually replaced by the WTO in 1995 by 123 member countries. Today, it is the largest international economic organization in the world and accounts for around 98 per cent of world trade.
- Everything the WTO does is through negotiations to promote freer and fairer international trade, and dealing with the global rules of trade between nations.
- All member countries of the WTO have 'most favoured nation' status. This means that any trade concessions granted to a particular member country must also be applied to all other WTO members to ensure non-discriminatory trade between all members. This is in line with the WTO's principle of promoting freer and fairer trade.

TOP TIP!

Note that in some special circumstances the WTO will support the use of trade barriers. It provides exceptions for environmental protection, national security and other important goals such as to protect consumers from the spread of infectious diseases.

■ The objectives of the WTO

The six interrelated **objectives** of the WTO serve as the core principles of an effective multilateral trading system:

- 1 **Non-discrimination** – This means a WTO member country cannot discriminate between its trading partners. It requires all members of the WTO to refrain from discriminating between the goods and services or nationals (people) of their trading partners.

- 2 More open** – The WTO aims to encourage economies to be more open by engaging in free trade. Member nations are obliged to reduce or remove artificial trade barriers, such as subsidies (paid to domestic firms), tariffs, quotas and trade embargoes (import bans on selected products). This will help producers to conduct their businesses in a fairer way.
- 3 Predictable and transparent** – By being more open and non-discriminant, trade becomes more predictable and transparent. This also implies that trade barriers should not be used arbitrarily or indiscriminately. Hence, predictability and transparency help to encourage trade and investments thereby facilitating economic growth, employment and development in the long term.
- 4 More competitive** – The WTO discourages unfair trading practices and protectionist measures, such as export subsidies or dumping of certain products (charging prices below cost in order to gain market share). However, the concepts of fairness and inequity are somewhat subjective and open to interpretation. Nevertheless, by promoting freer and fairer trade, more competition is created, enabling consumers around the world to enjoy the benefits of greater choice and lower prices.
- 5 More beneficial for less developed countries** – The WTO aims to provide trade opportunities for low-income nations. This means that all members agree to engage in fairer and freer trade to enhance the economic growth and development of low-income countries. WTO rules are also more relaxed to give low-income countries more time to adjust to the rules, regulations and requirements of WTO membership.
- 6 Protect the environment** – WTO agreements allow member countries to take necessary measures to protect their natural environments and ecosystems, including aspects of public health, animal health and plant health. However, such protectionist measures must be applied in accordance with the aim of non-discrimination, that is, any restrictions or sanctions imposed on foreign businesses must also apply to domestic firms. This means that member states are not allowed to use environmental protection measures as a hidden form of trade protection.

■ The functions of the WTO

The WTO states that its overall purpose is to ensure that the trade between countries flows as smoothly, predictably and freely as possible. To this effect, it has five main functions:

- 1 Trade negotiations** – The WTO is run by its members during 'Rounds' of trade negotiations. It provides an international platform for members to negotiate trade deals, rules and agreements, all of which become legally binding contracts. It involves members committing to lower tariffs and non-tariff barriers to trade. This helps to keep trade policies and practices within the agreed parameters set by the WTO.
- 2 Implementation and monitoring** – This function serves to encourage accountability and transparency regarding trade policies and practices between member countries. Membership requires the agreement of governments to commit to making their trade policies transparent. Officials then monitor these policies to ensure they are implemented in line with the agreements and requirements of the WTO.
- 3 Dispute settlement** – Handling trade disputes is a core function of the WTO. This function is vital for enforcing the rules and regulations of WTO membership. Members can raise their concerns with the WTO if they believe that their membership rights have been infringed. The WTO acts as an independent arbitrator in trade-related disputes between member countries.

- 4 Building trade capacity** – The WTO grants special provisions for low-income countries to facilitate their growth and development. This includes allowing these member countries to have longer periods of time to implement trade agreements and commitments.
- 5 Outreach** – This function helps to increase global awareness of the WTO's objectives and activities. The WTO works and co-operates with other institutions in pursuit of its goals. Its outreach includes non-governmental organizations (NGOs), charitable foundations, international organizations (such as the Organisation for Economic Co-operation and Development (OECD), the World Bank and the International Monetary Fund), and the media in order to promote economic co-operation and growth between member countries.

■ Factors affecting the influence of the WTO (AO2)

- Membership of the WTO can generate many economic and political benefits through its trade liberalization policies.
- As the only global organization that deals with the rules of international trade, it can be difficult to measure the effectiveness of the WTO's policies on trade flows.
- The factors that affect the influence or effectiveness of the WTO include: (1) difficulties of reaching an agreement on services/primary products, and (2) the unequal bargaining power of its members.
- **Difficulties of reaching an agreement on services/primary products** – Despite the agreements with the WTO, high-income members such as the USA and the EU continue to use agricultural subsidies for their domestic producers and impose tariffs on primary products from low-income nations. This limits market accessibility for low-income countries, so their export competitiveness declines. Hence, despite the intentions of the WTO, free trade is not always conducted equally or fairly across the world.
- **Unequal bargaining power of members** – The vast majority of WTO members are of low-income status, yet the countries with the largest real GDP have much stronger bargaining power in reality. Hence, trade deals tend to be unfair for low-income countries and critics argue that the WTO is undemocratic in favour of the most economically powerful countries.

PAPER 1 EXAM PRACTICE QUESTION 30.1

Explain the differences between a free trade area (FTA) and a customs union as methods of economic integration.

[10 marks]

PAPER 1 EXAM PRACTICE QUESTION 30.2

Explain the differences between a common market and a monetary union.

[10 marks]

PAPER 1 EXAM PRACTICE QUESTION 30.3 (HL ONLY)

Explain the advantages and disadvantages of monetary union as a type of economic integration.

[10 marks]

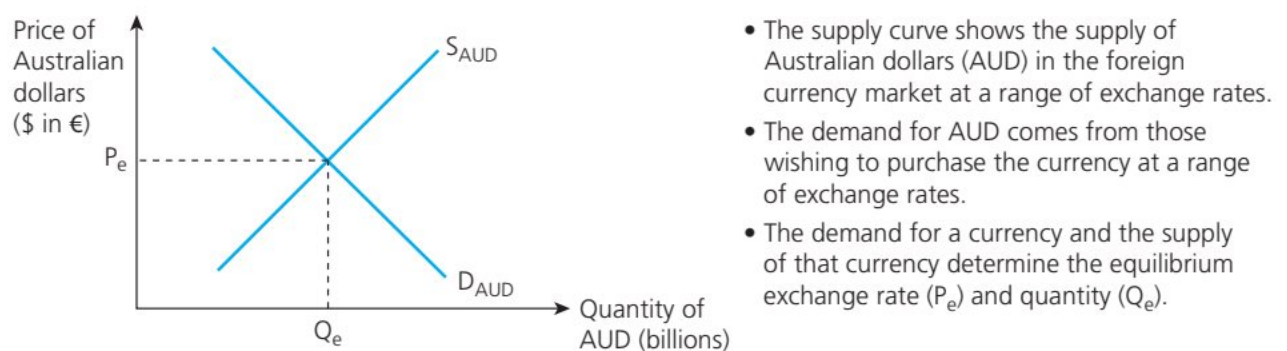
Chapter summary

- Economic integration is the process of countries becoming more interdependent and economically unified. Forms of economic integration include: (1) preferential bilateral, regional and multilateral trade agreements, (2) trading blocs, such as free trade areas, customs unions and common markets, and (3) monetary union.
- A bilateral trade agreement is a contractual trade arrangement between two countries, usually with the goal to reduce or remove barriers to trade.
- A regional trade agreement is a formal agreement between a group of countries, usually located within neighbouring geographical areas, to lower or eliminate barriers to trade.
- A multilateral trade agreement is a legally binding preferential trade agreement between more than two countries and/or trade blocs, under the guidelines of the WTO.
- Members of a trading bloc encourage free trade with each other, but the group imposes barriers to trade for non-member states.
- A free trade area is a type of trading bloc with members agreeing to trade freely with each other but can impose separate trade restrictions on non-member countries.
- A customs union is a type of trading bloc in which member states agree to remove trade barriers between themselves but impose a common external tariff on non-members.
- A common market (or single market) is the most integrated type of trading bloc, consisting of a customs union that allows the free movement of all factors of production between member countries.
- The advantages of being a member of a trading bloc include: (1) trade creation (HL only), (2) greater access to markets, which offers potential for economies of scale, (3) more employment opportunities, (4) stronger bargaining power in multilateral negotiations, and (5) greater political stability and co-operation.
- The disadvantages of being a member of a trading bloc include: (1) trade diversion (HL only), (2) the loss of sovereignty, and (3) challenges to multilateral trading negotiations.
- The formation of a customs union is likely to cause both trade creation and trade diversion. Economic integration improves the welfare of the economy if it leads to more trade creation than trade diversion. (HL only)
- Monetary union exists when member states of a common market adopt a single currency and establish a common central bank that oversees monetary policy for the group.
- The advantages of monetary union include: (1) exchange rate certainty, (2) increased cross-border investments, (3) increased trade, (4) lower transactions costs, and (5) price transparency. (HL only)
- The disadvantages of monetary union include: (1) loss of economic sovereignty, (2) loss of exchange rate flexibility, (3) asymmetric impacts on member states, and (4) transition costs of conversion. (HL only)
- The World Trade Organization (WTO) is a global institution that exists to promote trade liberalization, oversee multilateral trade agreements and resolve trade disputes between its member states.
- The objectives of the WTO are: (1) non-discrimination, (2) more open, predictable and transparent, (3) more competitive, (4) more beneficial for low-income countries, and (5) protection of the environment.
- The functions of the WTO are: (1) trade negotiations, (2) implementation and monitoring, (3) dispute settlement, (4) building trade capacity, and (5) outreach.
- Factors that affect the influence of the WTO include: (1) difficulties in reaching an agreement, and (2) the unequal bargaining power of member states.

Exchange rates

■ Floating exchange rates (AO2, AO4)

- An **exchange rate** refers to the value of one currency expressed in terms of another currency or a basket of other currencies.
- A **floating exchange rate** occurs when the value of a currency is determined by the demand for and supply of a currency in the foreign exchange market. In such an exchange rate system, there is no deliberate attempt made by a government to influence the value of its currency.
- When the value of a currency increases in a floating exchange rate system, this is referred to as an **appreciation** of the currency.
- When the value of a currency decreases in a floating exchange rate system, this is called a **depreciation** of the currency.

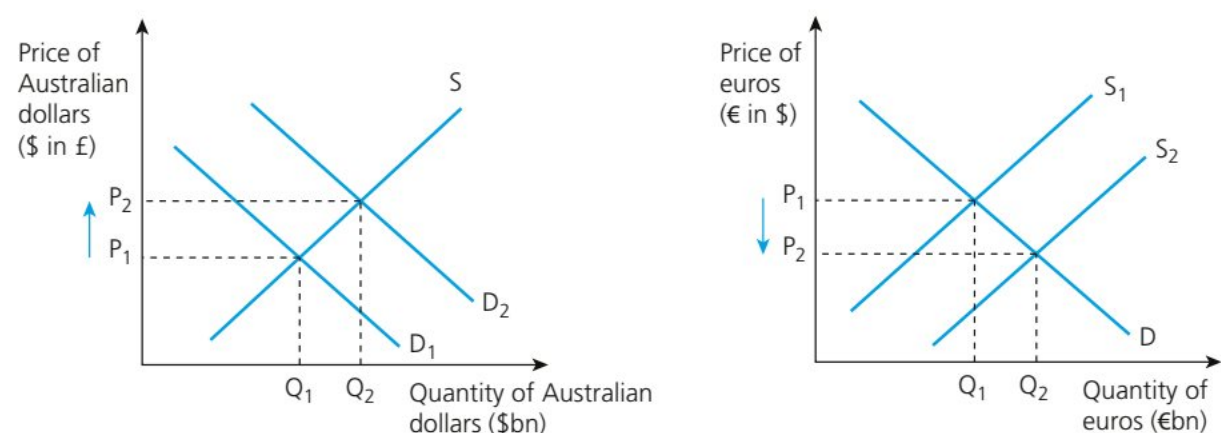


■ **Figure 31.1** Market for Australian dollars in euros

TOP TIP!

When constructing an exchange rate diagram, make sure you use the *same* currency (such as the Australian dollar) on both the *y-axis* and the *x-axis* because this represents the demand for and supply of that particular currency on the foreign exchange market.

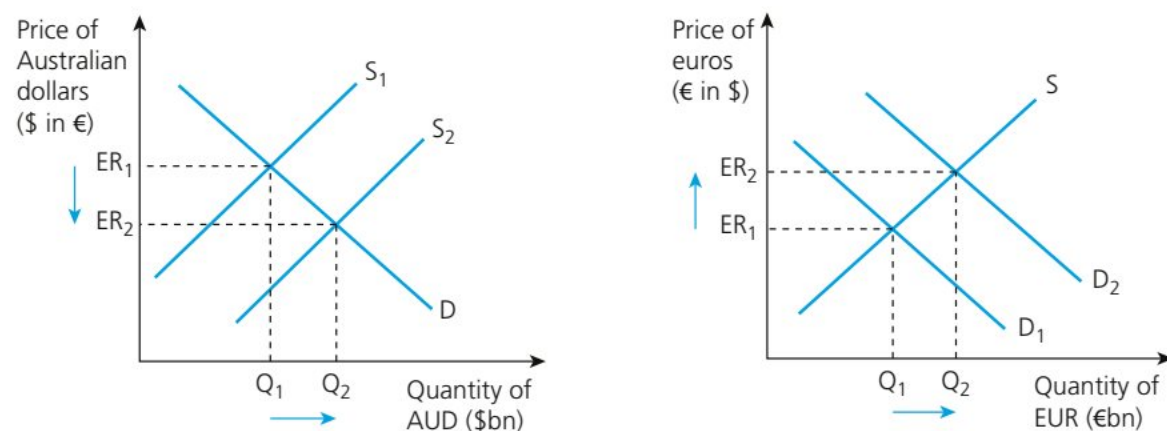
The analysis below shows the effects of a currency appreciation of the Australian dollar (AUD) against the euro (EUR), with reference to Figure 31.2.



■ **Figure 31.2** Appreciation of the Australian dollar

- If there is higher demand in the eurozone countries for Australian goods, this causes an increase in the demand for AUD, shown by the shift from D_1 to D_2 . This is matched (paid for) by an increase in the supply of euros, illustrated by the shift from S_1 to S_2 from European buyers who exchange their EUR for AUD to pay for their purchases.
- This means that an appreciation of the AUD against the EUR must result in the EUR depreciating in value against the AUD.

The following analysis shows the effects of a currency appreciation of the AUD against the EUR, with reference to Figure 31.3.



■ **Figure 31.3** Depreciation of the Australian dollar

- If there is higher demand in Australia for products from the eurozone countries, consumers and firms need to sell AUD in order to purchase EUR. This causes an increase in the supply of AUD, shown by the shift from S_1 to S_2 . This also results in an increase in the demand for euros, illustrated by the shift from D_1 to D_2 from Australian buyers who exchange their AUD for EUR to pay for their purchases.
- This means that a depreciation of the AUD against the EUR must result in the EUR appreciating in value against the AUD.

■ Changes in demand and supply for a currency (AO2)

- The value of a currency is determined by changes in demand and supply in the currency market (or the foreign exchange market). These changes result in a change in the value of a currency through the price mechanism.
- It is important to note that buyers of a currency must first exchange (sell) their own currency in order to buy the foreign currency.
- The factors that cause a change in the demand for and supply of a currency are: (1) foreign demand for exports, (2) domestic demand for imports, (3) inward versus outward foreign direct investment, (4) inward versus outward portfolio investment, (5) remittances, (6) speculation, (7) relative inflation rates, (8) relative interest rates, (9) relative growth rates, and (10) central bank intervention.
- **Foreign demand for exports** – When foreign buyers wish to purchase goods or services from a foreign economy, they must first purchase the currency of that economy to complete the transaction (via a foreign currency market). This is simply because foreign currencies are not legal tender in the domestic economy. This leads to an appreciation in the currency of the foreign economy and a depreciation of their own currency, *ceteris paribus*. The opposite applies if there is a fall in the demand for an economy's exports.

- **Domestic demand for imports** – When a product is imported into the domestic economy, this creates an increase in the supply of the domestic economy's currency on the foreign exchange market and an increase in demand for the overseas economy's currency. This will lead to a currency depreciation of the local currency but an appreciation of the foreign currency, *ceteris paribus*.
- **Inward/outward foreign direct investment (FDI)** – Foreign direct investment (FDI) is the spending by multinational corporations (MNCs) in overseas markets.
 - *Inward FDI* refers to foreign MNCs expanding their operations in the domestic economy, such as investments in production facilities. This causes an increase in the demand for the domestic currency and a subsequent currency appreciation.
 - *Outward FDI* refers to domestic MNCs expanding their operations in overseas markets. Hence, this increases the demand for the foreign currency, and causes a depreciation of the domestic currency.
- **Inward/outward portfolio investment** – Portfolio investment is the purchase of financial investments abroad, such as stocks, shares and bonds of overseas companies and governments. To purchase these investments, the investors must use the currency of the overseas economy.
 - *Inward portfolio investment* is the spending of foreign investors who supply (sell) their own currencies on the foreign exchange market and demand (buy) the currency of the economy that they are investing in. This causes a depreciation in their own currency and an appreciation of the foreign currency, *ceteris paribus*.
 - *Outward portfolio investment* is the spending by an economy's investors in overseas markets. This causes an increase in the supply of the domestic economy's currency and an increase in the demand for the foreign currency. This leads to a depreciation of the domestic currency and an appreciation of the foreign currency, *ceteris paribus*.
- **Remittances** – Remittances are the movement of money when nationals working abroad (known as expatriate workers) send money back to their home country, either to their own bank accounts or to family members. To do so, they need to supply the local currency that they are paid in and demand the currency of their home country. This causes a depreciation in the currency of the economy that they work in and an appreciation of the currency of their home nation, *ceteris paribus*.
- **Speculation** – This occurs when a financial asset is purchased in the hope that the resale value will be higher, that is, currency traders purchase different currencies in anticipation that their value will increase, so they can sell these currencies at a favourable exchange rate. Equally, if speculators think a currency will fall in value, they will tend to sell (supply) this in favour of other stronger or more stable currencies. Hence, the large trades of currency speculators can cause exchange rate fluctuations.
- **Relative inflation rates** – Inflation is the sustained increase in the general price level of an economy. An increase in the general price level will tend to decrease the demand for exports. This will lead to a fall in the demand for the local currency, causing it to depreciate in value.
- **Relative interest rates** – Interest rates are the costs of borrowing money and the rewards for saving money. Investors may wish to save in a country that has higher interest rates than in their own country. To do so, they need to buy the foreign currency. This causes an increase in the supply of their own currency and an

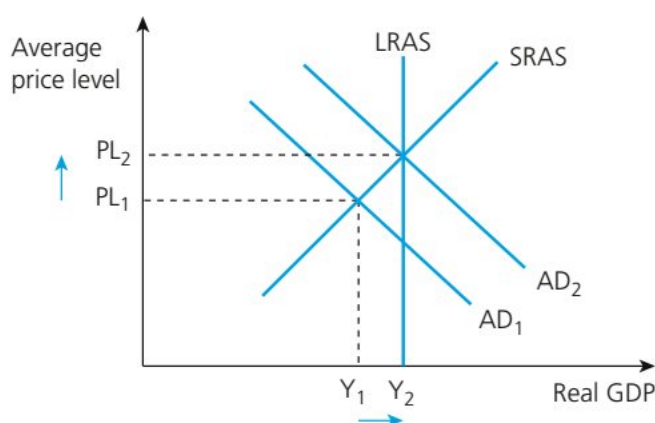
increase in the demand for the foreign currency. The opposite is true for a cut in interest rates, which reduces incentives for foreign investors who sell that currency in search of other investments with better returns, *ceteris paribus*.

- **Relative growth rates** – Economic growth is an increase in a country's real national income over time. Higher levels of real GDP are indicative of consumer and business confidence in the economy. This can attract FDI and hence demand for the domestic currency from abroad. Economic growth tends to cause the central bank to raise interest rates, which also causes the exchange rate to appreciate, *ceteris paribus*.
- **Central bank intervention** – The central bank is the monetary authority in an economy. In addition to the setting of interest rates, a central bank may introduce measures to restrict the supply or sale of its currency in order to control the money supply. This prevents foreign governments or large groups of investors from manipulating the local currency. Central banks can also get directly involved by buying or selling currencies to influence the exchange rate (see section below on fixed exchange rates).

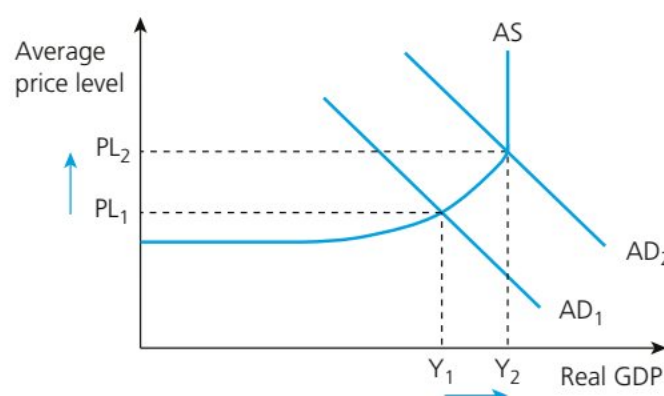
■ Consequences of changes in the exchange rate on economic indicators (AO3, AO4)

Fluctuations in the exchange rate impacts economic indicators and objectives, such as: (1) the inflation rate (price stability), (2) economic growth, (3) the unemployment rate, (4) the current account balance, and (5) living standards.

- **The inflation rate** – Changes in the exchange rate can impact both cost-push inflation and demand-pull inflation.
 - *Demand-pull inflation* is the sustained increase in the general price level due to an increase in any component of aggregate demand (increased consumption, investment, government spending and/or net exports).
 - *Cost-push inflation* is the sustained increase in the general price level due to an increase in costs of production, such as costs of labour and raw materials.
 - A currency depreciation generally leads to a fall in imports and an increase in exports because exports have become relatively cheaper, whereas imports become more expensive. This would increase the value of net exports ($X - M$). This is shown in Figures 31.4 and 31.5 by an increase in AD from AD_1 to AD_2 and causes real GDP to increase from Y_1 to Y_2 , although the general price level also rises from PL_1 to PL_2 .

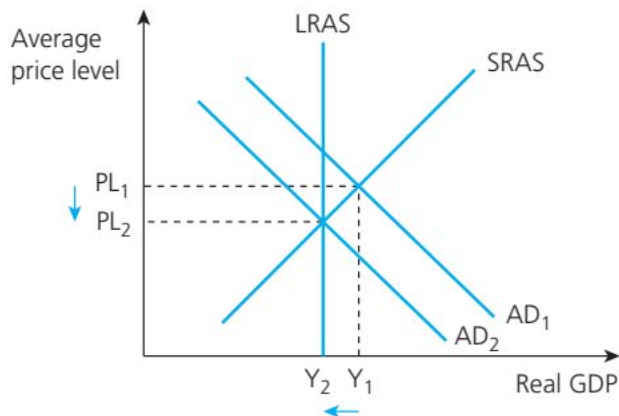


■ **Figure 31.4** Currency depreciation and demand-pull inflation in the new classical model

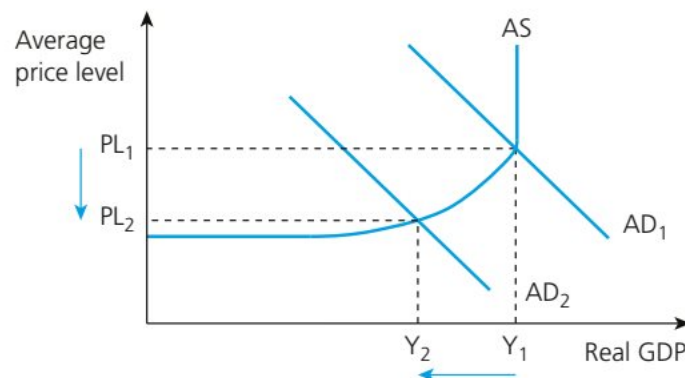


■ **Figure 31.5** Currency depreciation and demand-pull inflation in the Keynesian model

- In the case of a currency appreciation, the price of exported goods will increase and the price of imported goods will fall. This will lead to a reduction in net exports ($X - M$), *ceteris paribus*. Hence, AD falls from AD_1 to AD_2 as shown in Figures 31.6 and 31.7. The decline in net exports also causes the level of real GDP to fall from Y_1 to Y_2 and lowers the average price level from PL_1 to PL_2 .

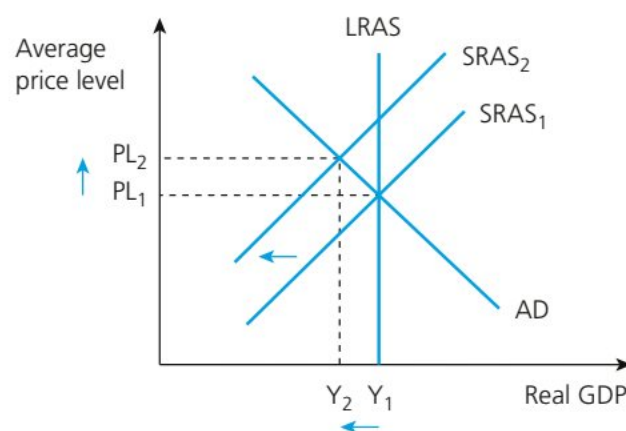


■ **Figure 31.6** Currency appreciation and lower demand-pull inflation in the new classical model



■ **Figure 31.7** Currency appreciation and lower demand-pull inflation in the Keynesian model

- In the case of a currency depreciation cost-push inflation can also occur if domestic firms rely heavily on the import of raw materials and components. A fall in the value of the currency leads to an increase in the price of imports and hence an increase in the costs of production for domestic firms. This causes a shift in the SRAS curve from $SRAS_1$ to $SRAS_2$ (Figure 31.8) and therefore an increase in the general price level from PL_1 to PL_2 , that is, cost-push inflation. The higher cost of production also contracts real GDP from Y_1 to Y_2 .



■ **Figure 31.8** Currency depreciation and cost-push inflation in the new classical model

TOP TIP!

Exchange rate fluctuations can have a positive or negative impact on the level of real national output. This will largely depend on the extent to which the country relies on imports for production.

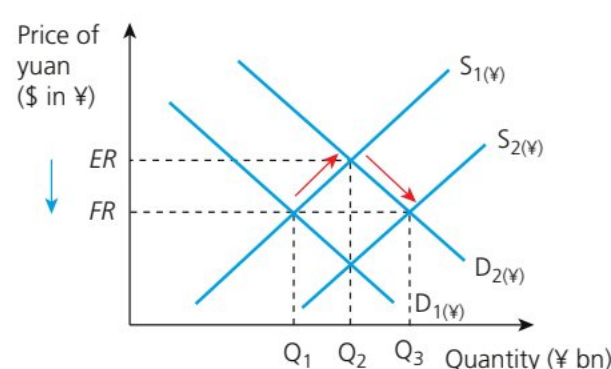
- **Economic growth** – This refers to an increase in the value of real national income over time. An appreciation of the currency will lead to an increase in the price of exports and a decrease in the price of imports, resulting in a fall in net exports, *ceteris paribus*. As net exports ($X - M$) fall, so do the levels of AD and real GDP. Diagrammatically, this would be represented by an inward shift of the AD curve in an AD–AS diagram.
- **Unemployment** – An appreciation of a currency may lead to a significant reduction in the demand for exports, which become more expensive for foreign buyers. The subsequent reduction in export revenues may eventually result in job losses in the domestic economy, especially in export-driven industries. For example, the tourism industry is particularly vulnerable to fluctuations in the exchange rate. Hence, a currency appreciation is likely to cause at least some unemployment in the economy, and vice versa.
- **The current account balance** – This is a record of all exports and imports of goods and services, plus net investment income from overseas assets plus the net balance of transfers made between countries by individuals and governments. As the balance is dependent on the international flows of money in and out of a country, fluctuations in the exchange rate will have a direct impact on the current account. For example, a currency appreciation will tend to lead to a reduction in the value of the current account as exports become less affordable to foreign buyers. The opposite is true for a currency depreciation because imports will be relatively more expensive for domestic firms and consumers.
- **Living standards** – In general, a strong (appreciating) currency will reduce the competitiveness of exports due to relatively higher export prices. The fall in export revenues and subsequent rise in unemployment will cause a reduction in standards of living. However, a relatively weak currency can create cost-push inflation if domestic firms and consumers have to pay more for essential imported products. In the case of some economically least developed countries (ELDCs), this could make it difficult for them to access essential goods and physical capital that need to be imported.
- **Fixed exchange rate (AO2, AO4)**
 - A **fixed exchange rate system** exists when the central bank (or central monetary authority) buys and sells foreign currencies in an attempt keep the value of its currency at a predetermined (fixed) rate against another currency or basket of other currencies.
 - For example, the Hong Kong dollar has been fixed against the US dollar at a rate of HK\$7.80 to US\$1 since 15 October 1983. The Hong Kong Monetary Authority maintains this fixed rate by buying (demanding) or selling (supplying) currencies as required.
 - The two main reasons why a government might want to fix the value of its currency are:
 - *Export competitiveness* – The value of a currency is a major factor in determining the competitiveness of an economy's exports as well as the price of its imports.
 - *Economic stability* – A fixed exchange rate creates certainty and confidence so tends to have a positive impact on the current account balance, economic growth and employment in the domestic economy.

■ Devaluation and revaluation of a currency (A02)

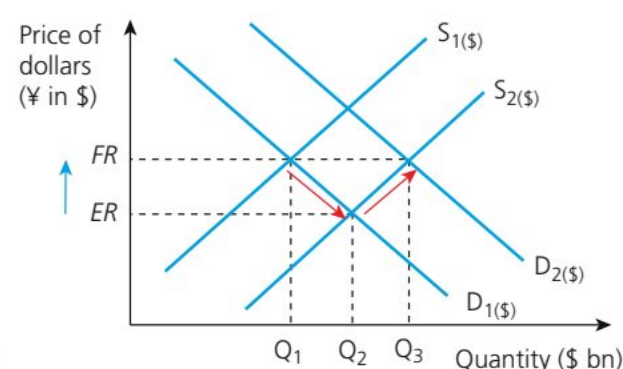
- **Devaluation** occurs when the value of currency operating in a fixed exchange rate system is officially and deliberately lowered against another currency or basket of currencies. In theory, the international competitiveness of a country can be improved by a currency devaluation because exports will become relatively cheaper, and imports become more expensive.
- **Revaluation** occurs when the price of a currency operating in a fixed exchange rate system is officially and deliberately increased. A government might choose to revalue its currency if it needs to import more essential goods and services or when it needs to deal with inflationary pressures caused by an influx of demand for its exports.

■ How fixed exchange rates are maintained (A02, A04)

- In a fixed exchange rate system, the government needs to match changes in the supply of or demand for a currency in order to keep it at the fixed rate.
- In the hypothetical example below, China wishes to mitigate the impact of exchange rate fluctuations on the competitiveness of its exports so opts to devalue the yuan (¥) against the US dollar (\$).
 - Suppose the Chinese government via the People's Bank of China (the nation's central bank), fixes the value of the ¥ against the \$ at the rate of FR .
 - If there is an increase in the demand from the USA for Chinese exports, this causes a shift in demand from D_1 to D_2 and hence harms China's export competitiveness due to the higher exchange rate (ER).
 - To maintain the value of the yuan at the fixed rate (FR), the Chinese government devalues the currency. It does this by matching the increase in the demand for yuan with an increase in the supply of the currency from S_1 to S_2 (selling the ¥ and buying the \$), thus lowering the value of the yuan from ER back down to FR .



US consumers buy the yuan to pay for Chinese exports. Subsequently, the Chinese government sells the yuan to maintain the fixed exchange rate at FR .

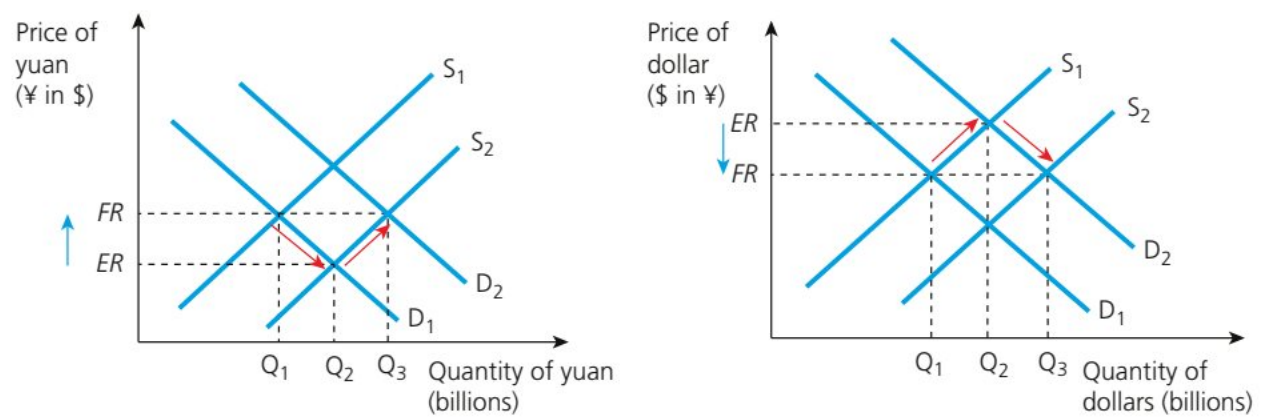


US consumers sell the USD to buy Chinese imports. Subsequently, the Chinese government buys the USD to maintain the fixed exchange rate at FR .

■ **Figure 31.9** Devaluation under a fixed exchange rate system

- In the opposite scenario, the People's Bank of China chooses to revalue its currency following the fall in the exchange rate due to a sustained rise from consumers in China purchasing imports from the USA.
 - The increase in the supply of the yuan (to purchase the dollar to pay for the US imports) causes a rise in the supply of the ¥ in the foreign exchange market.
 - To restore the fixed exchange rate (FR), the Chinese government buys the yuan by using (selling) its foreign reserve assets.

- This increases the supply of \$ on the foreign exchange market from S_1 to S_2 , thereby reducing the value of the US dollar, and increases the price of the Chinese yuan from ER back to FR .



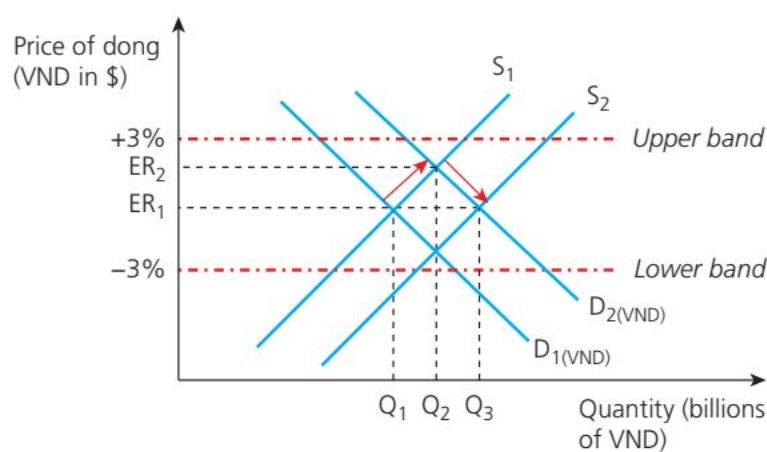
Consumers in China sell the ¥ and buy the \$ for their purchase of imports from the US. The Chinese government buys the ¥ to sustain the fixed exchange rate.

Consumers in China buy the \$ to pay for US imports, thereby shifting D_1 to D_2 . The Chinese government sells the \$ to maintain the fixed exchange rate.

■ **Figure 31.10** Revaluation under a fixed exchange rate system

■ Managed exchange rates (AO2, AO4)

- A **managed exchange rate** is a system where the government or central monetary authority intervenes periodically in the foreign exchange market to influence the exchange rate, especially if it is deemed to be undervalued or overvalued.
- A managed exchange rate is primarily determined by the market forces of demand for and supply of a currency. The government intervenes only occasionally when deemed necessary to influence the exchange rate in order to create or maintain certainty and confidence in the economy.
- An **overvalued currency** occurs when the value of a currency is above its equilibrium value, resulting in imports being cheaper and exports being relatively more expensive. This leads to a deficit on the balance of payments in the long run.
- An **undervalued currency** occurs when the value of a currency is below its equilibrium value. As a result, exports become relatively cheaper, but imports become more expensive for domestic consumers and firms. For some countries, this can lead to imported inflation because essential imports become more expensive.
- In a freely floating exchange rate system, an undervalued or overvalued currency is automatically corrected by the market forces of demand and supply in the foreign exchange market. However, in a fixed or managed exchange rate system, the central monetary authority will intervene to correct the disequilibrium:
 - If the currency is overvalued, the government or central monetary authority will seek to reduce its value by selling the currency.
 - By contrast, if the currency is undervalued, the central monetary authority will seek to increase the value by purchasing the currency.
- Intervening in the foreign exchange market when required helps to prevent large and sudden or unexpected fluctuations in the exchange rate, which could happen if currencies were left entirely to the free market forces of demand and supply. This also helps to build confidence in the economy.



■ **Figure 31.11** Managing the Vietnamese dong

- In Figure 31.11, the State Bank of Vietnam (SBV) allows the Vietnamese dong (VND) to fluctuate against the US dollar by ± 3 per cent.
 - The State Bank of Vietnam periodically intervenes to keep the value of the dong within the predetermined ± 3 per cent bands. Should the demand for the VND continually rise (from D_1 to D_2), which pushes the exchange rate up from ER_1 to ER_2 , the SBV will increase the supply of VND from $S_{1(VND)}$ to $S_{2(VND)}$ to reduce the value back to ER_1 .
 - On the other hand, if the exchange rate falls from ER_1 towards the lower band, the SBV would buy the dong (using its currency reserves) to increase the demand, thereby raising the exchange rate.

■ Fixed versus floating exchange rate systems (AO3)

The arguments for and against fixed and floating exchange rate systems are examined below. The disadvantages of fixed exchange rate systems can be seen as the advantages of a floating exchange rate system and vice versa.

- **Certainty and stability** – In general, a fixed exchange rate system is beneficial for firms owing to the certainty and stability it brings. Having a stable currency reduces risks so makes trade and investment in the economy more attractive. It also reduces currency speculation.
- **Opportunity costs** – Although a fixed exchange rate system reduces market volatility, this comes at the opportunity cost of the central monetary authority having to devote a significant amount of money to intervene in currency markets. In a freely floating exchange rate system, fluctuations in the exchange rate can make it more difficult for a government to achieve its macroeconomic objectives such as economic growth and price stability.
- **Currency liquidity** – This refers to the availability of a currency in the market. Maintaining a fixed exchange rate requires vast amounts of foreign currency reserves and/or assets (such as gold reserves) in order to impact the demand and supply of the currency. This crowds out or removes currency reserves from the foreign exchange market for private investors to invest in global markets and economies.
- **Monetary policy** – Higher interest rates are generally needed to revalue or appreciate the domestic currency, and vice versa. This means that economies using a fixed exchange rate system have minimal, if any, use of monetary policy to influence the level of economic activity. By contrast, economies operating a floating exchange rate system are free to use monetary policy to influence economic growth, employment and the general price level.

TOP TIP!

Fixed exchange rate systems are rare in today's globalized world. Few economies have the right conditions and resources to maintain such a system over the long term. Hence, it is not generally viable to operate a fixed exchange rate system, despite the theoretical benefits.

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 31.1

Suppose the exchange rate between the British pound (£) and the US dollar (\$) is £1 = \$1.45. Calculate the price (to 2 d.p.) for customers in Britain who buy US cars priced at \$45,200. *Show all your working out.* [2 marks]

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 31.2

- a If the exchange rate of the US dollar to euros is \$1 = €0.85, calculate the price paid in euros by a German tourist spending \$70 for a theme park (amusement park) ticket in Florida, USA. *Show all your working out.* [2 marks]
- b If the US dollar \$ depreciates against the euro to \$1 = €0.80, calculate the new amount that Italian tourists would have to pay in euros for the same entrance ticket to the theme park. *Show all your working out.* [2 marks]

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 31.3

- a Suppose that the exchange rate between the Canadian dollar (\$) and the British pound (£) is \$1.73 = £1 and the euro (€) is \$1 = €0.67. Calculate the exchange rate between the British pound and the euro. [2 marks]
- b Suppose the exchange rate between the dirham used in the United Arab Emirates (AED) and the Hong Kong dollar (HKD) is AED1 = HKD2.12. Calculate the price for customers in Hong Kong who buy jewellery priced at AED24,550 from the UAE. [2 marks]

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 31.4

Suppose the exchange rate of the Kuwaiti dinar (KWD) against the Nigerian naira (NGN) changes from KWD1 = NGN1,200 to NGN1,365. Explain **two** possible reasons for the change in the exchange rate of the KWD against the NGN. [4 marks]

PAPER 3 EXAM PRACTICE QUESTION 31.5 (HL ONLY)

■ Foreign currency reserves – July 2021

Country	USD millions (\$)
China	3,214,700
USA	141,810

Source: Trading Economics <https://tradingeconomics.com/country-list/foreign-exchange-reserves?continent=g20>

- a Calculate the value of the US foreign currency reserves as a percentage of China's. [1 mark]
- b Explain **two** reasons why China's foreign currency reserves are significantly larger than those of the USA. [4 marks]

PAPER 1 EXAM PRACTICE QUESTION 31.6

- a** Explain what is meant by an appreciation in the value of the exchange rate. [10 marks]
- b** Using real-world examples, discuss the macroeconomic consequences of a depreciation in the value of a country's exchange rate. [15 marks]

Chapter summary

- Exchange rates are the value of one currency in terms of another, or a basket of other currencies.
- A floating exchange rate is where the value of a currency is determined by the market demand for and supply of the currency on a foreign exchange market.
- If the value of a currency increases in a floating exchange rate system, this is called a currency *appreciation*. If the value falls, it is referred to as a currency *depreciation*.
- The factors that can lead to a change in the value of a currency include: (1) foreign demand for exports, (2) domestic demand for imports, (3) inward FDI, (4) inward portfolio investment, (5) remittances, (6) speculation, (7) inflation rates, (8) interest rates, (9) economic growth rates, and (10) central bank intervention.
- Fluctuations in the exchange rate can influence economic indicators, such as: (1) the inflation rate, (2) economic growth, (3) unemployment, (4) the current account balance, and (5) living standards.
- A fixed exchange rate system exists when the central bank (or monetary authority) intervenes in the foreign exchange market to ensure the value of its currency stays at a predetermined rate.
- Devaluation occurs in a fixed exchange rate system when the exchange rate is officially and deliberately lowered. This makes exports cheaper relative to imports. The opposite applies for revaluation of a currency.
- A managed exchange rate system involves the periodical intervention of a central bank or monetary authority in the foreign exchange market to influence the exchange rate.
- An overvalued currency results in cheaper imports but a decline in the net export balance. With an undervalued currency, exports become cheaper, but this can cause inflationary pressures due to the subsequent increase in aggregate demand.
- Economies that use a fixed exchange rate system benefit from certainty and stability. However, there is a huge opportunity cost to maintain the fixed rate, as well as matters related to currency liquidity and the inability to freely use monetary policy.

Balance of payments

■ The balance of payments (AO1, AO4)

- The **balance of payments** is a financial record of a country's transactions with the rest of the world, usually over one year. It includes the country's trade in goods and services with other countries.
- In the broadest of terms, any money entering a country can be referred to as an inflow or **credit** to the country's balance of payments, whereas an outflow or **debit** refers to any flow of money leaving the economy.
- **Credit items** are payments received from consumers, firms and institutions or governments located outside of the economy. Examples include export sales (X), inward foreign direct investment (FDI) and capital transfers.
- **Debit items** are payments made to consumers, firms and institutions or governments located outside of the economy. Examples include import expenditures (M), income transfers overseas, and the repatriation of profits from multinational companies in the economy.
- A **surplus** on the balance of payments exists when the total value of credit items exceeds the total value of debit items ($X > M$), over a given period of time.
- A **deficit** on the balance of payments exists when the total value of debit items exceeds the total value of credit items ($M > X$), over a given period of time.

■ Components of the balance of payments (AO2)

The balance of payments consists of three accounts: (1) the current account, (2) the capital account, (3) and the financial account. The structure of the balance of payments accounts is shown in Table 32.1.

■ **Table 32.1** The structure of the balance of payments

1 Current account
<ul style="list-style-type: none"> ● Balance of trade in goods ● Balance of trade in services ● Income ● Current transfers
2 Capital account
<ul style="list-style-type: none"> ● Capital transfers ● Transactions in non-produced, non-financial assets
3 Financial account
<ul style="list-style-type: none"> ● Foreign direct investment (FDI) ● Portfolio investment ● Reserve assets ● Official borrowing

Source: IB Economics Guide, page 49

■ Current account

- The **current account** is a record of all trade flows (exports and imports of goods and services), income flows and income transfers between countries by individuals, firms and governments. It is the largest account in the balance of payments, and as such is likely to be the account most often referenced in the new media.

- It records all exports and imports of goods and services, plus net investment income from overseas assets, and the net balance of transfers made between countries by individuals, firms and governments.
- There are four components of the current account:
 - **Balance of trade in goods** – This records all exports and imports of physical goods between a country and the rest of the world.
 - **Balance of trade in services** – This records all exports and imports of services between a country and the rest of the world. The **balance of trade** (or the **trade balance**) is then the difference between a country's total export earnings and its total import expenditure on both goods and services, that is, the value of $X - M$.
 - **Income** – This records the *income receipts* (credit items) earned from foreign investments minus the *income payments* (debit items) of factor incomes paid to foreign investors. Income consists of the inflows and outflows of payments to the factors of production, that is, the sum of wages, interest, rent and profit.
 - **Current transfers** – This is the difference between the inflows and outflows of money that are not made in exchange for trade or any corresponding output, such as official development assistance (ODA), foreign aid, government grants, concessionary loans, and donations between a country and the rest of the world. It also includes foreign workers' net remittances.
- Therefore, the **current account balance** is the sum of all items listed in the current account, that is, $\text{Current account} = \text{Net exports of goods and services} + \text{Net income} + \text{Net current transfers}$.
- The balance can be in deficit (when $M > X$), in surplus ($X > M$) or zero ($X = M$).

CURRENT ACCOUNT FORMULAE

- Net exports of goods and services = Exports of goods and services – Imports of goods and services
- Or
- Net exports of goods and services = Balance of trade in goods and services = $(X - M)$
- Net income from abroad = Income from abroad – Income paid abroad
- Net current transfers = Current transfers from abroad – Current transfers sent abroad
- Current account balance = Net exports of goods and services + Net income + Net current transfers
- Capital account = Net capital transfers + Transactions in non-produced, non-financial assets.

TOP TIP!

Remember the **GIST** of the current account, that is, that it is made up of four components:

- **G**oods – the trade in physical goods
- **I**ncome – net investment income from overseas assets
- **S**ervices – the trade in services
- **T**ransfers – net current transfers (of private individuals and government) between countries.

■ Capital account

- The **capital account** records the different forms of capital inflows and outflows of a country during a given time period. Examples include foreign currency flows, debt forgiveness (or debt relief), and the buying and selling of non-produced, non-financial assets.
- The capital account is a relatively small section of the balance of payments. It consists of two parts: (1) capital transfers, and (2) transactions in non-produced, non-financial assets.
 - **Capital transfers** – These are the different forms of capital inflows and outflows such as debt-forgiveness and developmental aid.
 - **Transactions in non-produced, non-financial assets** – These record the buying and selling of legal property rights to natural resources (such as mineral rights and fishing rights) or intellectual property rights (such as trademarks, copyrights and patents).
- Hence, the capital account = Net capital transfers + Transactions in non-produced, non-financial assets.

■ Financial account

- The **financial account** of the balance of payments records the change in ownership of assets, that is, cross-border investments. These include: (1) foreign direct investment, (2) portfolio investment, (3) reserve assets, and (4) official borrowing.
- It is significantly larger than the capital account but generally smaller than the current account.
- **Foreign direct investment** – FDI is spending by multinational corporations (MNCs) in economies in which they are not headquartered. It includes the expenditure of MNCs setting up or expanding production and distribution facilities in overseas locations, as well as the acquisition of at least 10 per cent of the shares in foreign companies. Net FDI is the difference between FDI inflows and FDI outflows.
- **Portfolio investment** – This refers to the stock of investment assets, such as shares, securities (government bonds) and debentures (corporate debts), in return for interest or dividends. These assets only represent changes in lending and borrowing between households, firms and governments across international markets rather than actual direct investments.
- **Reserve assets** – These are stocks of foreign currencies and precious metals, such as gold reserves, held by central banks used to balance international transactions and payments. They are physical assets and must be easily transferable or convertible. Reserve assets are typically used to meet balance of payments financing needs or to influence the exchange rate.
- **Official borrowing** – This refers to government borrowing rather than borrowing of private individuals, households and firms. Governments often borrow from creditors or institutions outside of their own economy for development purposes and to finance their current account deficits.

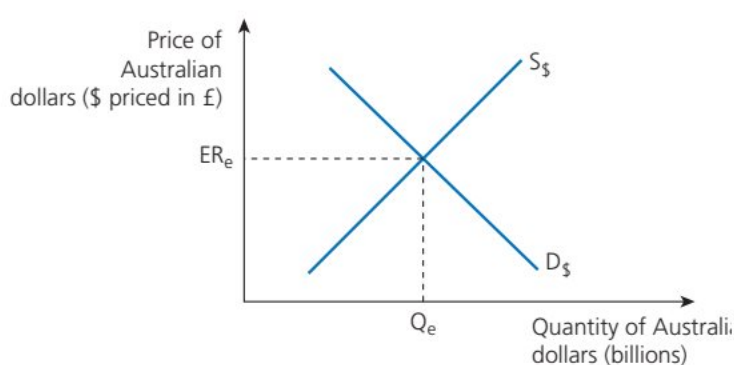
■ Interdependence between the accounts (AO2)

- The relationship between the three accounts in the balance of payments relates to an accountancy technique called ‘double-entry’, which means that for every transaction with an economy and its trading partners, a value will be credited and a value will be debited.

- Essentially, the overall balance of payments (BOP) must always balance because in the long term a country can spend only what it earns. It is possible to run a deficit in one component of the BOP as this will be 'balanced' by having a surplus in another account or component.
- Therefore, three interrelated conditions must hold true for the BOP:
 - Zero balance in the overall balance of payments.
 - Deficits are matched by surpluses.
 - Credit items are matched by debit items.
- This relationship can be demonstrated by the formula: Current account = Capital account + Financial account.
- This means that the current account, capital account and financial account are interdependent. A country with a current account deficit consumes more than it produces so has to pay for this extra output through a surplus on its financial account (and vice versa).
- In reality, the BOP will not necessarily balance (have a zero balance) because there are just too many transactions to account for in such a precise way. To resolve this matter, **errors and omissions** are included to represent statistical discrepancies when compiling the accounts. Hence, the following condition must hold for the BOP to balance: Current account = Capital account + Financial account + Errors and omissions.

■ Relationship between the current account and the exchange rate (AO2, AO4) (HL only)

Figure 32.1 and the analysis below refer to trade between Australia and the UK under a freely floating exchange rate system.



■ **Figure 32.1** Equilibrium position in a freely floating exchange rate system

- The demand for Australian dollars (\$) from UK consumers represents credits to the Australian economy. This comes about as a result of an increase in the supply of UK pounds (£), which represents a debit to the UK economy.
- Higher demand for Australian goods and services will shift the $D_{\$}$ curve to the right, thereby increasing the value of the Australian dollar, *ceteris paribus*. At the same time, British consumers sell pounds (to purchase the \$), thereby reducing the value of the £ on the foreign exchange market, *ceteris paribus*.
- In theory, under a freely floating exchange rate system, equilibrium should be restored in the long run (at ER_e and Q_e), meaning that debits and credits in both the British and Australian balance of payments will be equal.
- When looking at the current account, it can be seen that exchange rates influence the demand for imports and exports. A current account deficit exists when import expenditure is greater than export earnings for the country ($M > X$), and vice versa.
- There is an inverse relationship between the value of the domestic currency and current account balance. This means that a lower exchange rate causes a rise in the price of

imports and a fall in the price of exports. In theory, the value of exports will subsequently increase, while the value of imports will decrease based on the law of demand.

- By contrast, a higher exchange rate causes a fall in the price of imports and an increase in the price of exports. All things being equal, the value of exports will subsequently decrease and the value of imports will increase.
- Under a freely floating exchange rate system, the current account deficit is automatically resolved because exports become relatively cheaper and imports relatively more expensive. Export earnings should therefore rise and imports expenditure should fall, thereby restoring equilibrium.
- However, this is more problematic under a fixed exchange rate system unless a devaluation of the currency is approved. If so, this should improve the current account in the same way as with a depreciation of the currency in a freely floating exchange rate system.

■ Relationship between the financial account and the exchange rate (AO2) (HL only)

- The financial account records mainly investments (FDI and portfolio investment) but also includes reserve assets and official borrowing.
- This means that a surplus in the financial account is likely to be due to credit items from investments being made in the domestic economy by those outside of the economy.
- To make such investments, investors will need to demand the domestic currency, thus causing an increase in the demand for that currency. This causes an increase in the value of the foreign currency and a fall in the value of the domestic currency, *ceteris paribus*.
- When portfolio investments, such as stocks and bonds, yield dividend payments for their foreign investors, this would represent a debit in the financial account as the money leaves the domestic economy. The payment is transferred to investors in their foreign currencies, thus increasing the supply of the local currency, which would cause a currency depreciation, *ceteris paribus*.

■ Implications of a persistent current account deficit (AO3) (HL only)

The implications of a persistent current account deficit can be examined in terms of: (1) exchange rates, (2) interest rates, (3) foreign ownership of domestic assets, (4) debt, (5) credit ratings, (6) demand management, and (7) economic growth.

- **Exchange rates** – Whenever a good is imported, there has been a demand for a foreign currency to pay for the product by supplying the domestic currency. Therefore, persistent current account deficits lead to a weaker domestic currency as supply exceeds demand. For countries reliant on key imports such as oil, the declining currency increases production costs and erodes consumer surplus. Hence, this limits national output and employment.
- **Interest rates** – As a persistent current account deficit puts downward pressure on the exchange rate, interest rates may need to rise to attract foreign currency and capital inflows. However, this can have a contractionary impact on aggregate demand in the economy. If this is prolonged, it could lead to a recession and higher unemployment.

- **Foreign ownership of domestic assets** – A current account deficit has to be financed by a surplus on the financial account, often in the form of FDI. However, this could mean more domestic assets become owned by foreign MNCs, which can leave the domestic economy in a vulnerable position.
- **Debt** – If a country does not have sufficient financial reserves to fund its persistent current account deficit, it will have to borrow money to pay for this. This represents a credit to the financial account, but the mounting national debt comes with its own problems, such as escalating interest repayments, lower economic growth and job losses.
- **Credit ratings** – A persistent current account deficit tends to reduce a country's credit rating (the creditworthiness of the nation, based on its ability to repay the loan). This is because it signals underlying economic problems for the country that may need to restructure its debts by agreeing to longer repayment periods. However, this will make such countries less attractive to foreign lenders and investors in the future.
- **Demand management** – An economy often experiences a current account deficit when it grows rapidly, as those with higher incomes tend to purchase more imports. Contractionary demand management policies can be used to reduce the demand for imports to correct a persistent current account deficit. These policies can lower expenditure on all goods and services, so negatively affect growth and employment.
- **Economic growth** – To close a current account deficit, a government may choose to lower aggregate demand in the economy, although this is likely to compromise economic growth. Similarly, a poor credit rating due to high levels of indebtedness (to fund the deficit) will impact consumer and producer confidence levels. This will hinder both consumption and investment, further harming economic growth in the future.

■ **Methods to correct a persistent current account deficit (AO2) (HL only)**

Governments use various policies to correct a persistent deficit on the current account. These policies can be grouped into three categories: (1) expenditure switching policies, (2) expenditure reducing policies, and (3) supply-side policies.

- **Expenditure switching policies** – These are measures intended to cut a current account deficit by encouraging households and firms to buy domestically produced goods and services rather than imported alternatives. These policies include:
 - *Export promotion* – These are policies (such as subsidies) that stimulate the demand for exports by improving export competitiveness in specific industries. However, export promotion involves a large amount of public sector funding, for which there are opportunity costs.
 - *Trade protection* – These measures (such as tariffs and quotas) reduce the competitiveness of imports so make domestically produced items more attractive. However, trade protection protects uncompetitive and inefficient domestic industries and could cause trading partners to retaliate by imposing their own controls.
 - *Currency devaluation* – The central bank or monetary authority can devalue its exchange rate to reduce the price of exports and make imports more expensive. This leads to an increase in net exports ($X > M$), ceteris paribus.
- **Expenditure reducing policies** – These are measures designed to reduce a current account deficit by lowering disposable income, which limits AD and import expenditure in particular. This is usually achieved through use of contractionary policies, such as:

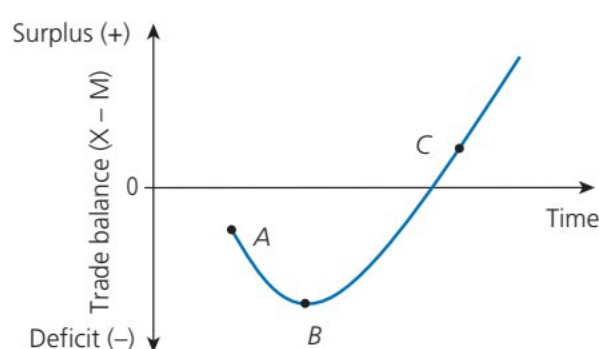
- *Contractionary monetary policy* – Higher interest rates make new and existing loans more expensive for borrowers, while greater incentives to save will withdraw money from the circular flow of income. Hence, households and firms tend to reduce their demand for imports.
- *Contractionary fiscal policy* – These measures use a combination of higher taxes and reduced government spending to reduce consumption, investment and the amount of money available to spend on imports, thereby correcting the current account deficit.
- **Supply-side policies** – These are long-term measures that strive to raise the productive capacity of the economy and to increase the country's international competitiveness. Examples of supply-side policies include:
 - *Investments in education and healthcare* help to improve the economy's human capital, thereby raising the country's long-term export competitiveness.
 - *Investments in infrastructure* help to support export-orientated firms and industries, owing to improved transportation and communications networks. This improves domestic productivity and competitiveness, so reduces the demand for imports and increases the demand for exports, *ceteris paribus*.
 - *Policies to encourage export-driven business* (such as subsidies and tax incentives) help to develop home-grown start-ups and industries that rival foreign competition.
- The most significant limitation of using supply-side policies to correct a persistent deficit on the current account is the time involved. While these policies can be extremely expensive to fund, they take a substantial amount of time to have any noticeable impact on the economy and hence the current account.
- Hence, there is no guarantee that expenditure reducing, expenditure switching and supply-side policies will correct a disequilibrium in the current account.

■ Effectiveness of methods to correct a persistent current account deficit (AO3) (HL only)

- Expenditure switching policies do not always work because price is not the only factor that determines the level of international demand for goods and services. Customers will consider non-price factors such as quality, functionality and brand loyalty. This is particularly applicable in the case of luxury products such as jewellery, designer clothes and accessories, fine wines or high-performance sports cars.
- Expenditure reducing policies (such as higher direct taxes) can cause disincentive effects, thereby restricting economic growth and development in the future. Contractionary demand-side policies can also cause mass-scale unemployment in the economy.
- The effectiveness of any method to correct a persistent current account deficit also depends on the price elasticity of demand (PED) for both exports and imports (refer to the theory of the J-curve effect).
- Trade protection methods can also cause problems as other countries are likely to retaliate. Such political and economic disharmony will reduce the benefits of international trade and economic efficiency. Domestic consumer surplus will be lower due to higher prices and reduced choice, which can lead to a fall in the standard of living, especially in ELDCs.
- Attempts by governments to devalue their currency (to correct a current account deficit) will only work under a system of fixed exchange rates. However, the falling

value of the currency can cause imported inflation (higher priced imports of essential products such as crude oil, raw materials and foodstuff).

- While supply-side policies (such as investments in education and healthcare) aim to make domestic output more competitive, they tend to take a long time to materialize and require significant government funding. Hence, the use of supply-side policies to rectify a persistent current account deficit tends to be highly costly to the economy.
- **The Marshall-Lerner condition and the J-curve effect (AO2, AO4) (HL only)**
 - Under a fixed exchange rate system, a government can devalue its exchange rate to resolve a current account deficit. In theory, this will make exports relatively more attractive to overseas buyers and make imports more expensive for domestic citizens. The opposite applies in the case of a current account surplus.
 - However, a currency devaluation or sharp depreciation will work to rectify a current account deficit only if the sum of the price elasticities of demand for exports (X) and imports (M) is greater than 1, that is, price elastic. This rule is called the **Marshall-Lerner condition**: $PED_x + PED_m > 1$.
 - If $PED_x + PED_m = 1$, then a currency devaluation or depreciation has no impact on the current account deficit. Likewise, if the $PED_x + PED_m < 1$, then the fall in the exchange rate will actually worsen the deficit further. This is because the currency is worth less, yet exporters and importers are relatively unresponsive to the fall in the exchange rate.
 - The significance of the Marshall-Lerner condition can be illustrated by a **J-curve effect**, which shows the impact on a country's balance of payments following a currency depreciation. Initially, the balance worsens before it gets better (see Figure 32.2) due to time lags.



A lower exchange rate causes a relative rise in the price of imports and a relative fall in the price of exports. This worsens the deficit, shown by the movement from A to B, as the PED_x and PED_m remain relatively price inelastic. Over time, the PED_x and PED_m will increase as households and firms adjust to the relative price changes, boosting exports and reducing imports. This moves the account from B to C, thus eliminating the deficit.

■ **Figure 32.2** The J-curve

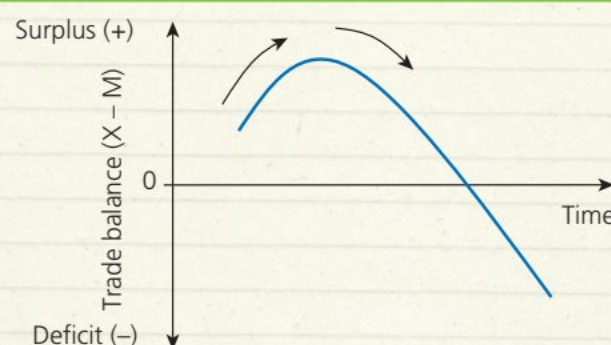
- Individuals, households and firms in both domestic and foreign markets need time to adjust to the change in the relative prices of exports and imports following the change in the exchange rate.

TOP TIP!

The J-curve will only materialize (that is, a currency devaluation or sharp depreciation used to rectify a current account deficit) if the Marshall-Lerner condition holds.

TOP TIP!

The same analysis applies to countries with a persistent current account surplus with the use of an inverse J-curve. A currency revaluation or sharp appreciation reduces the demand for exports but increases the demand for imports, thereby eliminating the surplus over time, if the Marshall-Lerner condition holds.

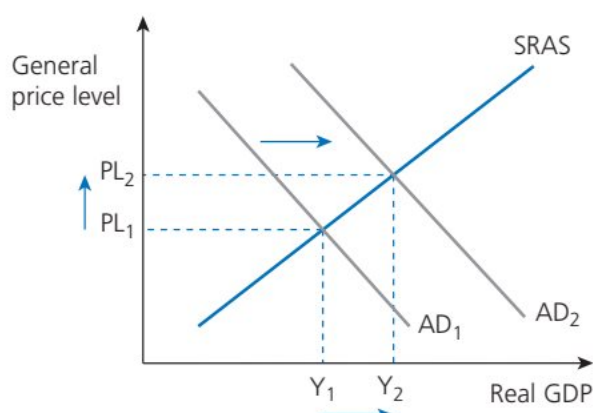


■ **Figure 32.3** Inverse J-curve

■ Implications of a persistent current account surplus (AO3) (HL only)

A persistent current account surplus is not necessarily or always desirable. There are implications of a surplus on: (1) the level of domestic consumption and investment, (2) exchange rates, (3) inflation, (4) employment, and (5) export competitiveness.

■ **Domestic consumption and investment** – In the short run, a current account surplus helps to boost AD from AD_1 to AD_2 and enables the economy to grow from Y_1 to Y_2 (see Figure 32.4). As a result, employment will also increase. However, the resulting inflation can deter future investments in the country.



■ **Figure 32.4** The impact of a persistent current account surplus on consumption and investment

■ **Exchange rates** – A current account surplus implies there is greater demand for the domestic currency (as $X > M$). This can cause the domestic currency to appreciate in value. Subsequently, exporters will find it increasingly difficult to sell their products, which hinders domestic output and employment opportunities. It also makes the economy less attractive for inward FDI.

■ **Inflation** – A persistent current account surplus implies there is an increase in net exports ($X > M$) for the country. A large surplus will result in a significant increase in AD, leading to demand-pull inflation (causing the general price level to rise from PL_1 to PL_2 in Figure 32.4). This tends to reduce the international competitiveness of the economy in the long run.

■ **Employment** – The export-led growth enjoyed by an economy with a persistent current account surplus is likely to lead to more employment. When firms experience a sustained increase in export revenues, they are likely to increase their demand for labour. Major oil exporters like Saudi Arabia, Kuwait, Qatar and the UAE have enjoyed sustained current account surpluses, thus creating employment opportunities and raising standards of living. However, a consequence of this is that job losses are created in other countries. After all, a current account surplus in one country is another's deficit.

■ **Export competitiveness** – A persistent current account surplus can diminish the international competitiveness of the country over time as exports become more expensive owing to the higher demand. Domestic firms that rely on imports of raw materials and components can become complacent and over-reliant on favourable exchange rates so do not invest in measures to improve their efficiency and competitiveness. When these conditions disappear due to a correction of the current account surplus, these firms are left uncompetitive in export markets.

TOP TIP!

Whether a persistent current account surplus is desirable largely depends on the causes of the surplus. For example, if the surplus is due to increased use of trade protection measures, the consequence will be welfare and efficiency losses to society. If the surplus is due to export-orientated policies, then the country should experience economic growth and further employment opportunities.

TOP TIP!

Students often assume that a balance of payments disequilibrium refers only to a deficit. While this is not entirely incorrect, disequilibrium also refers to a surplus.

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 32.1

Study the data below and answer the question that follows.

Balance of payments for Country X (\$ billion)	
Exports	98
Goods	67
Services	31
Imports	i ...
Goods	88
Services	23
Balance of trade in goods	ii ...
Balance of trade in services	iii ...
Trade balance	iv ...

Calculate the missing figures in the accounts above.

[4 marks]

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 32.2

Study the data below for Country Y and answer the questions that follow.

- Trade in goods = – \$28.3bn
- Trade in services = + \$31.85bn
- Net income = + \$1.3bn
- Net current transfers = – \$1.45bn

- a Define the term *net income*. [2 marks]
- b Calculate the value of the balance of trade for Country Y. [2 marks]
- c Calculate the value of the current account for Country Y. [2 marks]

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 32.3

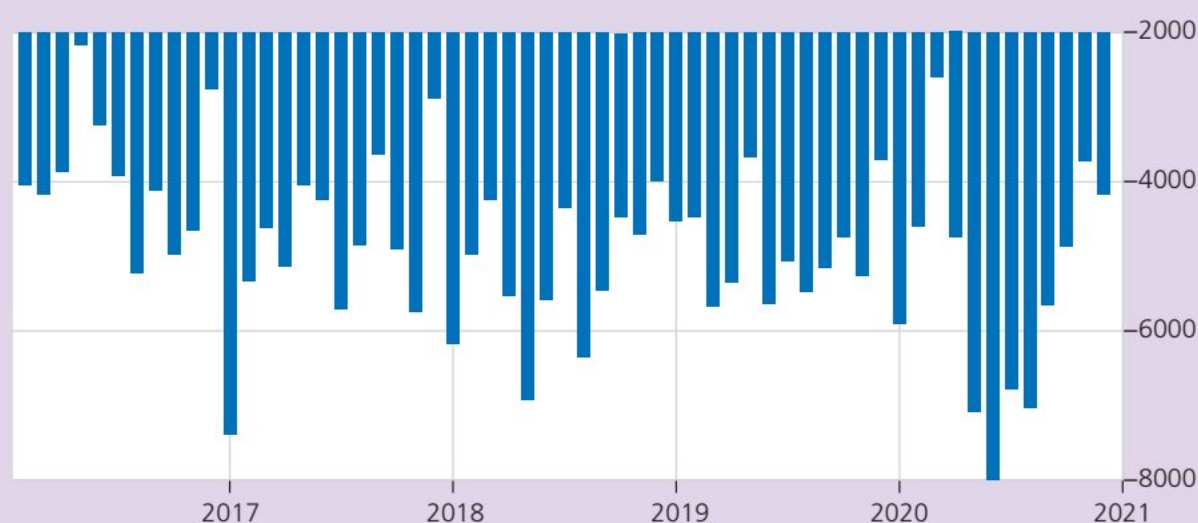
The table below shows data from Country Z's balance of payments.

Item	\$billions	Item	\$billions
Exports of goods	235	Net current transfers	–30
Exports of services	320	Net direct investment	65
Imports of goods	–440	Net portfolio investment	38
Imports of services	–235	Capital transfers	26
Net income	20	Trade in non-produced, non-financial assets	20

- a Calculate the value of Country Z's current account balance. [2 marks]
- b Calculate the value of the financial account for Country Z. [2 marks]
- c Calculate the value of the capital account for Country Z. [2 marks]
- d Calculate the value of errors and omissions on the balance of payments for Country Z. [2 marks]

PAPER 2 EXAM PRACTICE QUESTION 32.4

France is a major exporter of medicines and a large importer of German, US and Japanese cars. The chart below (Figure 32.5) shows the balance of trade for France for a five-year period from 2016 to 2021.



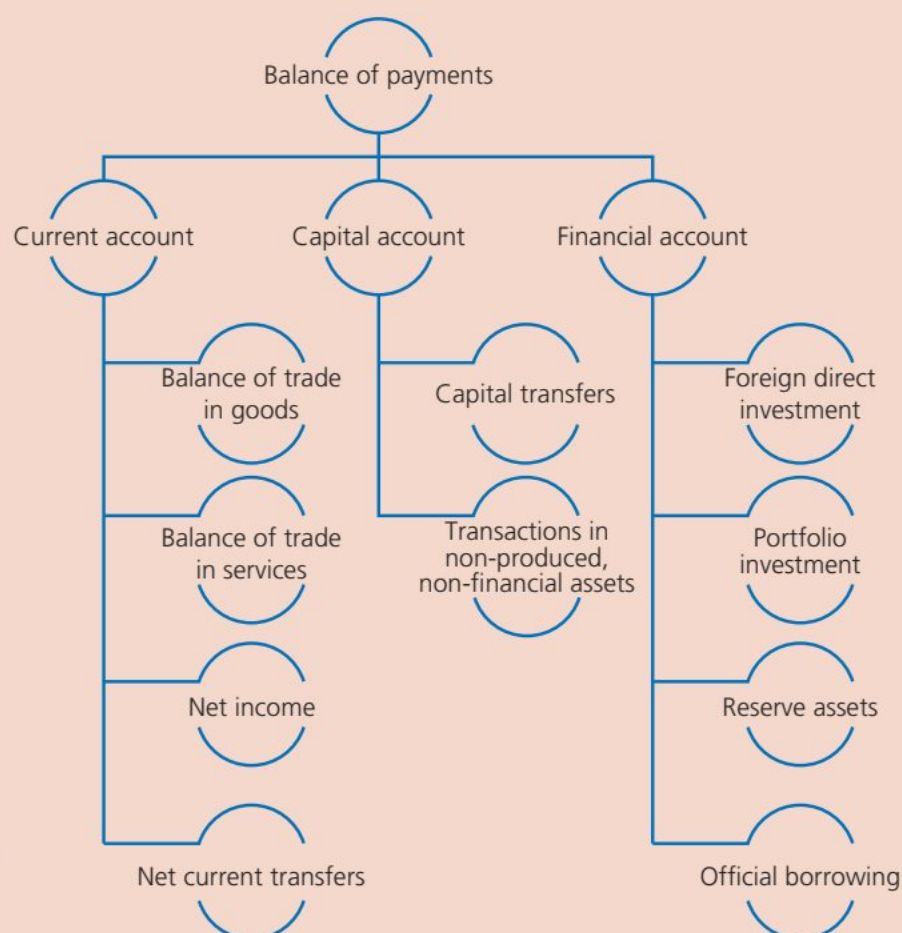
■ **Figure 32.5** Balance of trade for France (\$bn) 2016–21

Source: <https://tradingeconomics.com/france/balance-of-trade>

- Define the term *balance of trade*. [2 marks]
- Explain **two** possible causes of France's persistent balance of trade deficit. [4 marks]

Chapter summary

- The balance of payments (BOP) is a financial record of a country's transactions with the rest of the world for a given time period.
- Money that enters an economy is called an inflow or credit item, whereas money that leaves the economy is an outflow or debit item.
- A surplus occurs when the total value of credit items exceeds the total value of debit items during a given time period.
- A deficit occurs when the total value of debit items exceeds the total value of credit items during a given time period.
- The three interrelated components of the BOP are shown in Figure 32.6 below.
- The largest component of the BOP is the current account, which records a country's exports and imports of goods and services, plus its net investment income from overseas assets, and net transfers made between countries by individuals, firms and governments.
- The capital account records the different forms of capital inflows and outflows of a country, such as capital transfers and transactions in non-produced, non-financial assets.



■ **Figure 32.6** Components of the balance of payments

- The financial account records transactions related to the change in ownership of assets, consisting of FDI, portfolio investment, reserve assets and official borrowing.
- The overall BOP must balance because in the long run a country can spend only what it earns, that is, the sum of credit items equals the sum of debit items. Therefore, it is possible to have a deficit in one component of the BOP so long as it is balanced by having a surplus in another account.
- The value of an exchange rate will have a considerable impact on the demand for imports and exports. There is an inverse relationship between the value of a domestic currency and the country's BOP.
- Persistent current account deficits will tend to lead to weaker currencies, higher interest rates, further leakages, debt, lower credit ratings, harmful demand-management policies and lower economic growth.
- Methods to correct persistent current account deficits include: (1) expenditure switching policies, (2) expenditure reducing policies, and (3) supply-side policies. (HL only)
- A currency devaluation is effective in resolving a current account deficit only if the sum of the price elasticity of demand (PED) for imports and exports is greater than one, that is, price elastic. This is referred to as the Marshall-Lerner condition. (HL only)
- The J-curve effect illustrates the impact of time lags on the current account following a fall in the value of the currency. It shows the current account worsens before it gets better due to the time lags involved in adjusting to a lower exchange rate. (HL only)
- A persistent current account surplus will tend to: (1) hinder consumption and investment in the future, (2) appreciate the exchange rate, (3) lead to demand-pull inflation, (4) boost employment opportunities in the short run, and (5) diminish export competitiveness due to higher export prices in the long run. (HL only)

Sustainable development

■ The meaning of sustainable development (AO2)

- **Sustainable development** was defined by the Brundtland Commission, led by Harlem Brundtland (former prime minister of Norway) for the United Nations, as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'.
- Measures or indicators of economic development and a rise in standards of living over time include longevity, access to clean water, access to capital, literacy rates, and access to healthcare and education.
- Consumption, growth and development all contribute to the exhaustion of the planet's scarce resources, which can be classified as renewable and non-renewable resources.
 - Non-renewable resources do not naturally replenish once they have been used, such as carbon-based fossil fuels, minerals and groundwater. Hence, this is non-sustainable.
 - Renewable resources can naturally replenish if they are used or harvested sustainably, such as timber, animal husbandry, renewable energy sources and food crops.
- The benefits of growth and development have not been shared or distributed evenly across and within countries. In addition, by-products of rapid economic growth include environmental exploitation, pollution and climate change. While the rates of economic growth may meet the needs of today's demand, they could hinder the ability of the economy to fulfil the needs of future generations.
- The three core and interrelated pillars of sustainable development are:
 - (1) social sustainability, (2) economic sustainability, and (3) environmental sustainability.
 - **Social sustainability** – This refers to policies that enable people of the current generation to live a respectable life without hindering the quality of life for future generations. It helps people to achieve a better quality of life through improved access to shelter, healthcare and education.
 - **Economic sustainability** – This refers to the optimal use of scarce resources in order to ensure future generations are not disadvantaged in favour of today's generation. It involves safeguarding resources in a sustainable way, such as by recycling, reducing and reusing resources in the production process. Other strategies include poverty alleviation, universal access to education, equitable distribution of income and wealth, and widespread access to credit and finance.
 - **Environmental sustainability** – This refers to the responsible use of the planet's natural resources so that future generations are not compromised on their use of these organic resources. This may involve better use of renewable resources, waste management and environmental protection.

■ Sustainable development goals (AO2)

- The **Sustainable Development Goals** (SDGs) of the United Nations consist of 17 international development targets and 169 associated objectives, aimed at achieving peace and prosperity for everyone on the planet.
- The SDGs were adopted in 2015 with the 17 goals intended to be achieved by all UN member countries by 2030.
- Prior to 2015, the UN focused on the eight **Millennium Development Goals** (MDGs). These were originally planned to be achieved by all 193 UN member countries by 2000 (hence the name). The target for achieving the MDGs was extended to 2015, prior to UN members adopting the new SDGs.
- The 17 UNDP Sustainable Development Goals are: (1) no poverty, (2) zero hunger, (3) good health and well-being, (4) quality education, (5) gender equality, (6) clean water and sanitation, (7) affordable and clean energy, (8) decent work and economic growth, (9) industry, innovation and infrastructure, (10) reduced inequalities, (11) sustainable cities and communities, (12) responsible consumption and production, (13) climate action, (14) life below water, (15) life on land, (16) peace, justice and strong institutions, and (17) partnerships for the goals.

TOP TIP!

The SDGs are not standalone goals but interrelated in nature. Any progress made to achieve one goal, such as ending poverty in all of its forms everywhere (SDG1), leads to improvements in other SDGs such as ending hunger (SDG2) and reducing inequality within and among countries (SDG10).

■ Relationship between sustainability and poverty (AO2) (HL only)

- The SDGs recognize that eradicating poverty in all its forms, overcoming inequalities, creating inclusive economic growth and achieving environmental sustainability are intricately linked. It is not possible to achieve sustainability without protecting the planet. It is also not possible to eradicate hunger and poverty without being socially sustainable.
- The universally accepted measure of absolute poverty, according to the World Bank, is any individual living on less than \$1.90 per day. Perhaps even more staggering is that around 46 per cent of people worldwide, or around 3.4 billion people, still earn less than \$5.50 per day.
- The World Bank estimates there are around 800 million people in the world who are still living in extreme poverty, struggling to fulfil the most basic necessities to live a decent life, such as access to healthcare, education, clean water and sanitation.
- Poverty and sustainability are closely linked, as reflected in the first of the UNDP's 17 SDGs. It is only through sustainable development that poverty can be eradicated everywhere.
- Ending poverty in all its forms is the most important task recognized by the UN as it directly impacts and links to the other SDGs. For example, low-income countries are unable to pursue sustainable growth and development without adequate infrastructure (SDG9) such as transportation and communications networks.
- Data from the World Bank show that the majority of people who live below the international poverty line mainly reside in southern Asia and sub-Saharan countries,

with the majority of people working in the primary sector, such as agriculture, fisheries and forestry. Sustainable agriculture is therefore vital for poverty eradication in these countries.

- Quality education (SD4) leads to greater employability and skills development of the labour force. In turn, this leads to an increase in household income and a sustained reduction in poverty. This also facilitates research and development, as well as innovation of new techniques or ideas (SDG9). However, in many countries, girls do not have equal access to schooling (SDG5) due to limited financial means and an orthodox mentality. Hence, the lack of equal access to education does little to promote the eradication of poverty (SDG1) or reduced inequalities within and between countries (SDG10).
- A **gender gap** exists if there is a difference between women and men reflected in social, political, intellectual, cultural and economic activities, attitudes and opportunities. Correcting the gender gap (SDG5) is important for sustainability. Hundreds of millions of people could come out of extreme poverty if women were given equal access rights to productive resources.

TOP TIP!

Remember that economic growth does not always lead to economic development. Indeed, growth can help to eradicate extreme poverty, but it does not necessarily promote gender equality or other international and sustainable development goals.

PAPER 2 EXAM PRACTICE QUESTION 33.1

Rwanda is a small and landlocked country in East Africa with a densely packed population of 12.4 million people. The land is hilly but fertile. Rwanda borders the far larger and wealthier Democratic Republic of Congo, as well as Tanzania, Uganda and Burundi. Public investments have been the main driver of growth in recent years. With the support of the International Monetary Fund (IMF) and the World Bank, Rwanda has been able to make important economic and structural reforms in order to sustain its economic growth rates since 2010.

Going forward, the private sector will play a bigger role in helping to ensure sustainable growth and development. However, low domestic savings, inadequate skills and the high cost of energy are major constraints to private investments in Rwanda. Promoting domestic savings is therefore viewed as critical.

The percentage of Rwanda's population living below the international poverty line fell from 59 per cent to 39 per cent between 2001 and 2014 but was almost stagnant between 2014 and 2018. The official measure of income and wealth inequality, the Gini index, declined from 0.52 in 2006 to 0.43 in 2018.

Gender inequality has also fallen considerably since 2006. In Rwanda, women tend to be engaged in work such as water collection, growing and harvesting of crops, transportation of agricultural output to market stalls as well as the highly demanding task of raising children and looking after the family.

Source/adapted from: <https://www.worldbank.org/en/country/rwanda>

- a Define the term *international poverty line*. [2 marks]
- b Define the term *Gini index*. [2 marks]
- c Explain how a reduction in gender inequality might help Rwanda to achieve sustainable economic development. [4 marks]
- d Using information from the text/data and your knowledge of economics, discuss methods that the Rwandan government might use to achieve sustainable economic growth and development. [15 marks]

Chapter summary

- Sustainable development is development that meets the needs of the present generations without compromising the ability of future generations to meet their own needs. There are three interlinked dimensions of sustainability: social, economic and environmental sustainability.
 - Economic sustainability refers to the optimal use of scarce resources in such a way to ensure future generations are not disadvantaged in favour of today's generation.
 - Environmental sustainability refers to the responsible use of the planet's natural resources so that future generations are not compromised on their use of these resources.
 - Social sustainability refers to the ability of an economy to develop social processes and structures that enable its current population to live optimally and to support the ability of future populations to do so too.
- The Sustainable Development Goals (SDGs) of the United Nations Development Programme (UNDP) consist of 17 international development targets aimed at achieving peace and prosperity by all UN member countries by 2030. The SDGs are: (1) no poverty, (2) zero hunger, (3) good health and well-being, (4) quality education, (5) gender equality, (6) clean water and sanitation, (7) affordable and clean energy, (8) decent work and economic growth, (9) industry, innovation and infrastructure, (10) reduced inequalities, (11) sustainable cities and communities, (12) responsible consumption and production, (13) climate action, (14) life below water, (15) life on land, (16) peace, justice and strong institutions, and (17) partnerships for the goals.
- Poverty and sustainable development are intricately connected. Through sustainable development, poverty can be eradicated entirely. (HL only)
- A reduction in poverty (SDG1) is one of the most important strategies that ensure sustainable development. (HL only)
- Most of the poorest people in low-income countries live in absolute poverty (less than \$1.90 per day) and are dependent on primary sector activities. (HL only)
- Education leads to employability and skills development, which can help to increase household income and reduce poverty. (HL only)
- A gender gap (gender inequality) worsens the income distribution, which leads to poverty and threatens sustainable development. (HL only)

Measuring development

■ The multidimensional nature of economic development (AO2)

- The concept and multidimensional nature of economic development has evolved over time, and especially from the end of the Second World War. The term continues to be used in different academic and political contexts.
- One of the oldest lines of thought linked to economic development was the theory of Mercantilism, prevalent during seventeenth-century Europe. Mercantilism was a political and economic policy that focused on wealth creation through the use of international trade, that is, it involved government intervention and regulations. Wealth accumulation came from maximizing exports and minimizing imports to ensure a net inflow of wealth.
- During the same time, a distinguished group collectively known as **classical economists** influenced the academic landscape of economics. The likes of Adam Smith, Robert Malthus, Jean-Baptiste Say, David Ricardo and John Stuart Mill championed a self-regulating system of production, trade and exchange without the intervention of government authorities.
- Classical economists argued that wealth creation and economic development are best achieved in an economy when households and firms are driven by self-interest. Hence, they advocated international trade and were against all types of protectionist measures used by governments.
- During the nineteenth century, the Industrial Revolution enabled countries like the UK, Germany and the USA to experience unprecedented levels of economic prosperity.
- Having a presence in international markets led to the dominance of Japan in East Asia during much of the twentieth century. The economies collectively known as the 'Asian Tigers' (South Korea, Taiwan, Hong Kong and Singapore) experienced phenomenal rates of economic growth and development in the latter half of the twentieth century due to their export-oriented approach and focus on developing human and physical capital.
- Owing to the multidimensional nature of development, during the 1970s, economists started to look beyond economic growth as a solution to eradicate poverty, reduce malnutrition, increase job opportunities and provide access to basic human needs.
- The multidimensional nature of development includes more than economic growth, such as consideration of qualitative determinants of the quality of life. These factors include a reduction in: (1) poverty, (2) income and wealth inequalities, (3) gender inequalities, (4) political oppressions, and (5) long-term unemployment.
- In 1968, American economist Professor Michael Todaro (b.1942) envisaged development as a multidimensional process. Todaro argued that development, being a multidimensional concept, requires major changes in social structures and national institutions, as well as the acceleration of economic growth, reduction in inequality and the eradication of absolute poverty.

■ Single indicators (AO2)

- As economic development is a complex and multidimensional issue, measuring development can be a challenging task. Social scientists have approached measuring development in different ways.
- A **single indicator** refers to a statistical measure of economic development that uses one particular gauge, such as: (1) real gross domestic product (GDP) per capita at purchasing power parity, (2) health and education indicators, (3) economic/social inequality indicators, (4) energy indicators, and (5) environmental indicators.
- Single indicators are used to describe individual facets of development. For example, there is a direct correlation between a country's real GDP per capita and its level of economic development.
- Although the scope of development can hardly be measured by single indicators (owing to the multidimensional nature of development), they serve as relatively straightforward measures to gauge the level of development in an economy. After all, economic models make assumptions and simplify matters to gain a better understanding of how the economy works. Furthermore, it is not practical to account for every aspect of development.
- **GDP/GNI per person (per capita) at PPP**
 - This expresses national income as GDP per person at an exchange rate that equates the price of a basket of the same traded goods and services in different countries.
 - It is the most used single indicator of standards of living within a country.
 - Similarly, GNI per capita (which includes the value of output of national companies operating outside of the country) can be used as a single indicator to measure economic development.
 - However, it is worth noting that other essential aspects of development are ignored, such as disparities in income and wealth, gender inequalities, political freedoms and environmental issues.
- **Health and education indicators**
 - Health indicators measure development by using health-related determinants of the quality of life, such as life expectancy, expenditure on healthcare as a percentage of GDP and the under-five mortality rate.
 - Countries with a high GDP/GNI tend to have a lower infant mortality rate and a higher life expectancy rate.
 - Education indicators measure development by using education-related factors of the quality of life, such as literacy rates and the mean average years of schooling.
 - Quality education (the fourth Sustainable Development Goal) signifies the importance of using education indicators to inform policymakers in their pursuit of development.
- **Economic/social inequality indicators**
 - Economic indicators measure development using different economic factors, such as per capita consumption (PCC). This is calculated by dividing the sum of total consumption in the economy by the population size. The higher the PCC, the higher the level of development tends to be.

- Social indicators measure the extent to which societal factors contribute to development. These include indicators such as shelter and housing, crime rates, homicide rates, safety and the degree of trust in a neighbourhood or community. Some of the most prominent social inequality indicators are income inequality and wealth inequality, such as the Gini coefficient which is used as a universal indicator of income inequality (see Chapter 23).

■ Energy indicators

- These measures of development consider factors that create affordable, reliable, sustainable and modern energy for all citizens.
- With only finite reserves of fossil fuels, countries need to seek new and sustainable sources of energy.
- There are various energy indicators that can be used to measure development, such as: (1) proportion of the population with access to functioning electricity, (2) renewable energy usage as a proportion of total energy consumption, and (3) energy use as a proportion of GDP.
- There is a global trend towards the use of green technologies, that is, energy from natural sources such as sunlight, wind, rain, tides, plants, algae and geothermal heat. These alternative energy sources are complex and have had varying degrees of success.
- Energy indicators are vital for development as access to energy is necessary for production. They are used as part of the UN's seventh SDG: to ensure access to affordable and clean energy.

■ Environmental indicators

These measure development by considering environmental issues that influence the quality of life, such as:

- *Global warming and climate change* – this occurs when there is a rise in the planet's average temperature. Climate action is part of the UN SDG (SDG13).
- *Desertification* – This refers to the over-exploitation of soil and land through human activity. It not only causes drylands and a loss of fertile soil, but the process cannot be reversed for many decades. Desertification threatens sustainability and development due to water erosion, land degradation, famine and physical poverty.
- *Deforestation* – This is the permanent destruction of trees and forests to use the space for alternative purposes, such as for land for commercial agriculture, construction or manufacturing facilities. Deforestation is an environmental indicator used to measure the pace and scale of permanent destruction of trees and forests and the impact of this on economic growth and sustainability.
- *Waste disposal management systems* – These measures are used to encourage or force people to change their behaviour and lifestyle. The planet is facing a huge problem as a result of unsustainable waste disposal management systems and irresponsible use of plastics. For example, plastic waste in our oceans is a major threat to sustainable development.
- *Loss of biodiversity and ecosystems* – Maintaining or improving biodiversity and ecosystems is important in order to repair the damage done from uncontrolled growth and the pursuit of profits over the planet. Such measures include regulating land and water use, tackling the loss of natural habitats and protecting the state (condition or quality) of ecosystems as part of SDG14 and SDG15.

TOP TIP!

A single indicator of development, such as real GNI/GDP per capita, the PCC or environmental indicators, ignores other dimensions that affect development and the quality of life. Nevertheless, using these single indicators can certainly shed some light on a specific and important aspect of the overall level of development in the country.

■ Composite indicators of measuring development (AO2)

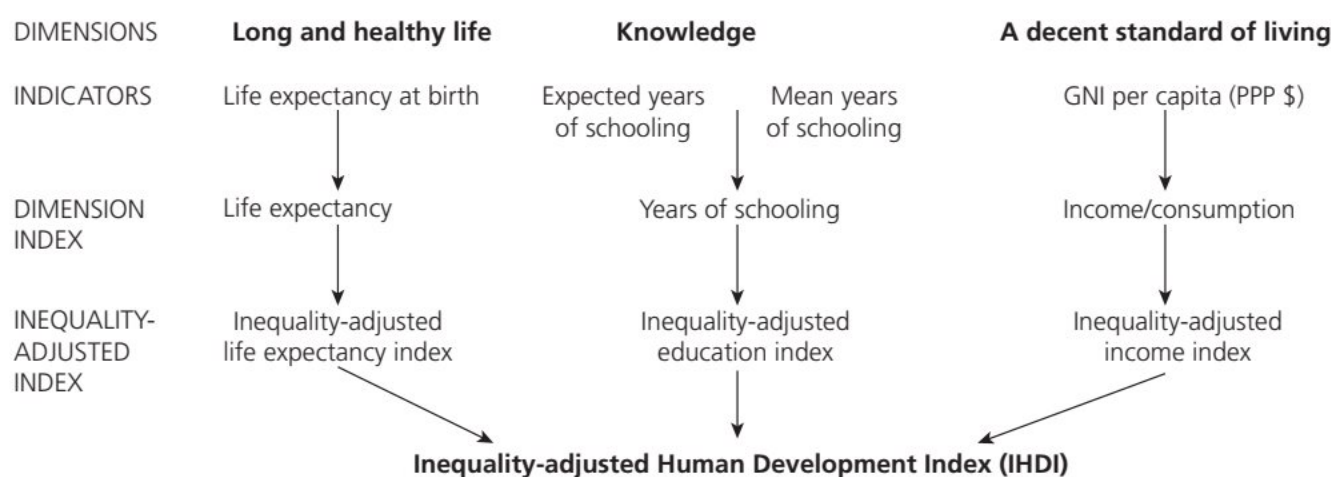
- A **composite indicator** is a statistical method that combines numerous single indicators of development into a combined index, such as the Human Development Index (HDI).
- Although they are more complicated to compile and measure, composite indicators of development encompass greater breadth and depth than single indicators.
- There are four composite indicators used to measure development in IB Economics: (1) the Human Development Index (HDI), (2) the Gender Inequality Index (GII), (3) the Inequality-adjusted Human Development Index (IHDI), and (4) the Happy Planet Index (HPI).
- **The Human Development Index (HDI)** – The most widely used composite indicator of development is the HDI.
 - It comprises three measures: (1) life expectancy, (2) educational – the mean (average) years of schooling and the expected years of schooling, and (3) income levels – real GDP or GNI per capita at purchasing power parity (PPP).
 - The three dimensions of the HDI are assigned equal statistical weights.
 - The value of the HDI is between zero (extreme underdevelopment) and one (very high human development). For example, Norway has a HDI of 0.957 whereas Sierra Leone's HDI is 0.452.
 - The HDI shows that development can occur without the country's GDP per capita increasing if there is a reduction in inequality and absolute poverty.

TOP TIP!

Economies with a high GNI per capita do not always have a high HDI. For example, Kuwait, Qatar and Liechtenstein have a higher GNI per capita than the USA and Hong Kong, but a lower HDI. This signifies that income is only but one measure of development.

- **Gender Inequality Index (GII)** – The UNDP's Human Development Report in 2010 introduced the Gender Inequality Index (GII), which calculates gender disparities as a measure of development. This measure of development calculates gender disparities through three dimensions:
 - 1** Reproductive health – This measures the Maternal Mortality Ratio (MMR), which calculates the number deaths of mothers per 100,000 live births, and the adolescent fertility rate (AFR), which calculates the number of births per 1,000 women aged between 15 and 19 years. Having children at an early age often causes social burdens and impedes employment opportunities.
 - 2** Empowerment – This measures the share of parliamentary seats held by each gender and rates of higher education attainment levels. Higher representation of women in parliament or government ensures that issues related to equality, equity, education, health and other developmental aspects are debated from alternative perspectives in favour of greater gender equality.

- 3 Labour market participation** – The female labour market participation rate indicates the percentage of females in the country aged over 15 and below 64 who are employed or willing to work. The higher the labour market participation rate, the greater the level of household income and the lower poverty tends to be.
- **Inequality-adjusted Human Development Index (IHDI)** – The UNDP uses this composite measure of development for the average person in a society by accounting for inequalities in society.
- The IHDI combines a country's indicators of health, education and income but factors in how these measures are distributed among the country's population.
 - The difference between the IHDI and HDI is the social and economic cost of inequality. So, under a situation of perfect equality in the economy, the IHDI is equal to the HDI.
 - In reality, some countries have a high HDI but a low IHDI when inequalities are accounted for. This suggests that the average person in the country may not have such a high quality of life as suggested by the HDI.



■ **Figure 34.1** The Inequality-adjusted Human Development Index (IHDI)

- **Happy Planet Index (HPI)** – This composite measure of sustainability considers sustainable human well-being, that is, how individuals and societies are able to achieve long, happy and sustainable lives.
- The traditional measures of development focus on how the welfare of citizens within a country can be maximized, failing to account for the way development today may impact on the development of tomorrow.
 - The HPI considers elements of sustainable well-being in order to ensure a minimal trade-off between development today and development in the future.
 - The index comprises four parts: (1) well-being – how citizens of a country feel about their own life overall, (2) life expectancy – the average number of years a person is expected to live for, (3) inequality of outcomes – a measure of the inequalities based on the distribution of the life expectancy and well-being data for the country, and (4) ecological footprint – the impact of the average person in the country on the environment.
 - The formula for calculating the HPI = (Well-being × Life expectancy × Inequality) ÷ Ecological footprint.
 - However, the notions of 'happiness' and 'well-being' are highly subjective so are difficult to measure in a meaningful way, especially in multicultural societies.

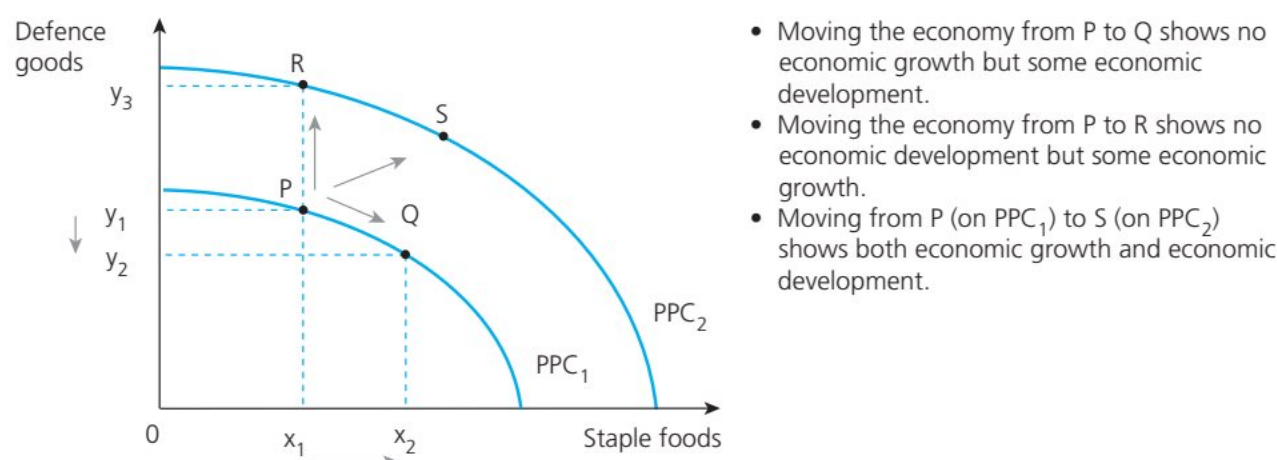
■ Strengths and limitations of approaches to measuring economic development (AO3)

- Given the diverse and complex nature of development, any single measure of development will have its shortcomings. For example, different countries place different priorities on environmental issues or gender equality. Furthermore, measuring economic well-being is a multifaceted process which changes over time.
- Changes in the real gross domestic product (GDP) is one of the most used indicators of the economic progress in a country over an extended period of time. However, as a single indicator, it fails to consider qualitative factors that influence the quality of life.
- Hence, economists and policymakers make use of more than one indicator to measure development. This is reflected in the UNDP's SDGs, introduced in 2015, which have influenced governments to partake in numerous discussions about best ways to measure and achieve development.
- Economic development cannot be delinked from the political, cultural and social aspects of the country in question. This makes measuring and comparing development between countries even more difficult to quantify and subjective.
- Political and social conflicts, corruption and external shocks all make it more difficult to measure development. Examples include major natural disasters, war and the spread of endemic diseases such as HIV/Aids and coronavirus. Some countries are also more prone to such external shocks than others.
- Given that all countries are different and diverse in their own ways, there are various attributes to development that do not always apply in the same way across nations and regions of the world. Hence, economists and policymakers can find it challenging to find one distinct or best measure to form the basis of quantifying and comparing development.
- Nevertheless, having numerous ways to measure development that interrelate and complement one another makes such measures a strength, be they single or composite indicators of development.

■ Possible relationship between economic growth and economic development (AO3)

- **Economic growth** is the increase in value of a country's real gross domestic product (GDP) per capita over time. This is a quantitative indicator of economic well-being.
- **Economic development** considers economic growth as well as qualitative determinants of the quality of life. Hence, development is a much broader and deeper measure of economic well-being. It includes qualitative indicators, such as a reduction in poverty, income inequality, gender inequality, political oppressions and long-term unemployment.
- Economic development is multidimensional in nature, encompassing tangible and intangible factors that raise the general standard of living in a country.
- There is a positive relationship between a country's economic growth and its level of economic development. It is generally accepted that economic growth is a precondition to achieving economic development, although this is not always necessary. However, it is possible for some people to live happier lives in the absence of higher incomes as this can come about at the opportunity cost of pollution, climate change, environmental damage, and greater income and wealth inequalities.

- The composition of any increase in economic activity and growth also needs to be considered. Spending more on national defence rather than staple foods, for example, is unlikely to improve the economic well-being for the average individual or household (see Figure 34.2). In any case, economic growth is usually needed over the long term for there to be economic development.



■ **Figure 34.2** Economic growth and development using the PPC diagram

TOP TIP!

Do not use the terms 'economic growth' and 'economic development' interchangeably, as some candidates tend to do in the exams. Economic growth is often regarded as a prerequisite to economic development, but there are many more factors that contribute to development than simply an increase in the real income of the average person in the country.

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 34.1

Refer to the data below and answer the questions that follow.

	Country A	Country B
Real gross domestic product	\$29.76 billion	\$273.75 billion
Population	12.4 million	7.5 million

- Calculate the real GDP per capita for both Country A and Country B. [2 marks]
- If both countries experience economic growth of 2.5 per cent, comment on the change in income gap between the two countries. [2 marks]

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 34.2

The data below show the Human Development Index (HDI) for four countries: Germany, Greece, Mozambique and Thailand.

- Define the term *Human Development Index*. [2 marks]
- Identify the four countries based on the given HDI figures in the table, providing a reason for your answers. [4 marks]

Country	HDI	Country	HDI
A	0.947	C	0.777
B	0.888	D	0.456

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 34.3

Suppose the exchange rate between the euro and the US dollar is €1 to \$1.18. If a Big Mac burger is priced at €3.5 and there is purchasing power parity, calculate the price of a Big Mac burger in US dollars.

[2 marks]

PAPER 2 AND PAPER 3 EXAM PRACTICE QUESTION 34.4

Assume in an economically less developed country (ELDC) that the real gross national product (GNI) increases from \$49 billion to \$53 billion and that its population increases from 71 million to 72 million during the same time period.

- a** Calculate the change in the ELDC's real GNI per capita. [2 marks]
- b** Comment on the state of development in the ELDC. [2 marks]

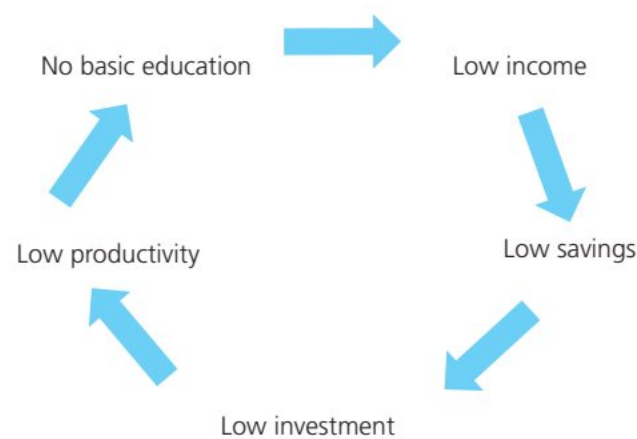
Chapter summary

- Economic development is multidimensional in nature, as there are many facets to what contributes to the economic and social well-being of individuals and societies.
- The concept of economic development has evolved during the past few centuries, from a perception that equates to economic growth to one that considers the ability to live a dignified life without any social, economic and political suppressions.
- Economic development can be measured by single indicators or composite indicators. A single indicator refers to a statistical measure of economic development that uses one particular gauge. A composite indicator is a statistical method that combines single indicators of economic development into a combined index.
- Single indicators used to measure economic development include: (1) GDP or GNI per capita in purchasing power parity terms, (2) health and education indicators, (3) economic and social inequality indicators, (4) energy indicators, and (5) environmental indicators.
- Composite indicators used to measure economic development include: (1) the Human Development Index (HDI), (2) Gender Inequality Index (GII), (3) Inequality-adjusted Human Development Index (IHDI), and (4) Happy Planet Index (HPI).
- Measuring economic growth and economic development is complex and subject to interpretation, so different approaches are taken to measure these. Many countries with high economic growth fare poorly in many developmental indicators. Nevertheless, economic growth generally brings about economic development but cannot ensure it.

Barriers to growth and/or economic development

■ Poverty traps/poverty cycles (AO2, AO4)

- Various economic, social and political factors create barriers to growth and development. One of the main reasons for poverty is the existence of poverty itself, that is, the poor get poorer as they remain trapped in deprivation.
- The **poverty trap** (or **poverty cycle**) is a vicious cycle of deprivation, which subsequently causes even greater poverty from one generation to the next. Low-income earners spend most, if not all, of their income to meet their essential needs and have insufficient funds to invest for their future. Hence, they are trapped in poverty (see Figure 35.1).



■ **Figure 35.1** The poverty trap

- The lack of basic education for the poorest members of society prevents them from getting into the mainstream or formal workforce as they lack the skills and requisite knowledge needed to get a job.
- The low **savings ratio** (savings expressed as a percentage of total disposable income) in ELDCs means that they have limited funds from savings to fund investment expenditure on basic infrastructure to support education and healthcare. This further hinders their future productive capacity and economic development.
- Low-income individuals also struggle to break the poverty trap as banks are unlikely to lend money to extremely poor people because there is a high risk of them defaulting on the loans, that is, failing to repay the money borrowed due to their financial position.
- Furthermore, poverty is commonly transferred from one generation to the next, so a poor family that is unable to access education and healthcare has a relatively low chance of getting out of poverty.
- Government intervention is therefore required to get people out of extreme poverty and the poverty trap, through the use of market-based and interventionist policies to promote economic growth and development.
- Barriers to development can be categorized as: (1) economic barriers, and (2) political and social barriers.

■ Economic barriers to growth and development (AO2)

The IB syllabus specifies ten economic barriers to growth and/or economic development. There are: (1) rising economic inequality, (2) lack of access to infrastructure and appropriate technology, (3) low levels of human capital, (4) dependence on primary sector production, (5) lack of access to international markets, (6) the informal economy, (7) capital flight, (8) indebtedness, (9) geography, and (10) tropical climates and endemic diseases.

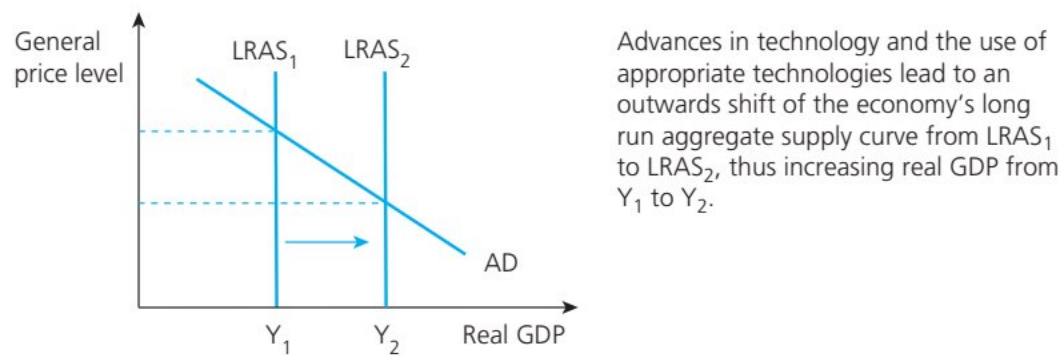
■ **Rising economic inequality** – This measures the disparities in the national income and wealth of a country, that is, how the national income and wealth of a country is distributed between all members of the society.

- If the rich minority account for the majority of the country's national income, it means the country's GDP is not distributed proportionately. Hence, economic growth does not ensure economic development if the poorer majority of society do not have sufficient access to education, healthcare and capital (credit), which leads to further inequalities.
- A high and rising degree of economic inequality is regarded as a major barrier to economic development in ELDCs. After all, the eradication of poverty does not only depend on growth in national income but on how that income is adequately distributed.
- A more equal distribution of national income will mean that those in extreme poverty are more likely to be able to access education and healthcare. This helps to improve human development and raise the level of productivity in the economy.
- The main way to redistribute income from the rich to the poor is to implement an effective progressive tax system. This means those who earn higher incomes are taxed at a higher rate, thereby redistributing income to support the poorest households.
- However, ineffective tax systems coupled with a high degree of corruption in many ELDCs have hindered income redistribution and hence economic development.

■ **Lack of access to infrastructure and appropriate technology** – Infrastructure refers to the physical structures and facilities required for the efficient running of a country, including transportation networks, telecommunications networks, schools and hospitals, social infrastructure (such as parliament, courts, regulatory bodies and prisons) and public utilities (such as energy, power supplies, water supplies, dams and sewage systems).

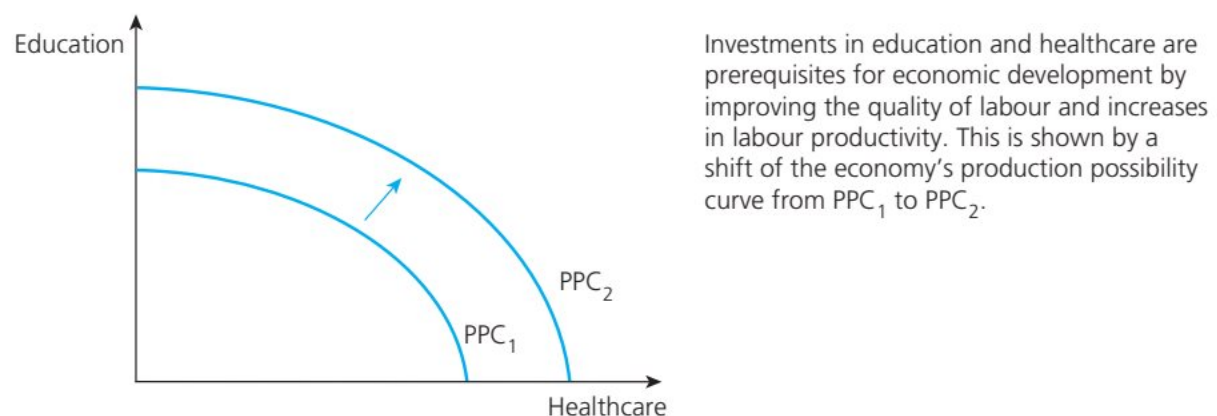
- A good infrastructure system enables greater productive capacity, leading to economic growth (see Figure 35.2) and development in the long run.
- However, many ELDCs have poor infrastructure, which reduces efficiency and productivity. It also makes it far more challenging to attract inward FDI. For example, a lack of suitable road networks will slow down all aspects of economic activity, which will obstruct economic development in the country.
- The lack of access to appropriate technology also limits the country's output. As a result, production is often labour intensive, inefficient and time consuming. This could discourage MNCs from investing in the country.

- Limited access to power in many ELDCs also limits or discourages primary education and the country's ability to offer adequate healthcare services.



■ **Figure 35.2** Impact of greater access to infrastructure and appropriate technology on the productive capacity of the economy

- **Low levels of human capital** – The lack of access to healthcare and education is a major barrier to economic growth and development. A low level of education and poor access to healthcare provision are key reasons that trap people in extreme poverty.
 - The quality of labour is largely dependent on the standard of healthcare, educational attainment, skills development and training.
 - According to children's charity UNICEF, educated women are at least twice as likely to encourage their children to attend school at primary level.
 - Education and health are important aspects of the UN Sustainable Development Goals, such as eradicating extreme poverty and hunger, reducing child mortality, improving maternal health, combating diseases such as HIV/AIDS, universal access to quality education for all and gender equality.
 - Investments in education and healthcare will shift an economy's long run aggregate supply (LRAS) curve to the right, *ceteris paribus*. Alternatively, this can be shown by an outward shift of the production possibility curve (PPC), as shown in Figure 35.3.



■ **Figure 35.3** Impact of greater access to education and healthcare on economic development

- **Dependence on primary sector production** – The primary sector involves the extraction, cultivation and collection of natural resources, such as agricultural farming, animal husbandry, mineral extraction, commercial fishing and forestry.
 - Countries that are highly dependent on primary sector production and employment tend to be the ones with the lowest human development indicators. The dependence, or over-reliance, on the primary sector is a barrier to a country's economic development.
 - Most of the resources used in the primary sector are exhaustible, so are not necessarily sustainable in the long term. As such, the resources in ELDCs

may eventually run out if the economy is overly dependent on primary sector production.

- In addition, as primary sector output is usually dependent on the climate and weather conditions, production is susceptible to natural disasters and climate change.
- A country rich in minerals or crude oil may become overly dependent on the production and export of these products. Although they may get to enjoy a high national income in the short term, natural resources will eventually run out in the long run. This is why countries like Qatar and the United Arab Emirates have diversified by investing in infrastructure, education and healthcare so that they can continue to experience economic growth and development in the long term.
- **Lack of access to international markets** – Market access is the ability of a nation to sell its goods and services across borders and to enter foreign markets.
 - Trade liberalization policies have helped many countries to foster trading relationships with other nations, although ELDCs have tended to lack such access.
 - Countries with high export earnings tend to have a greater level of economic development due to their ability to access international markets.
 - However, the intensity of global competition from more economically developed countries (MEDCs) and their various protectionist measures have made it more difficult for many ELDCs to compete. The use of tariffs, embargoes, quotas and administrative barriers imposed by MEDCs have restricted the ability of ELDCs to access many international markets, thus limiting their development.
- **Informal economy** – The informal economy (or parallel markets) refers to economic activities that are not officially recorded as part of a country's GDP.
 - Activities in the informal sector are not officially recorded (as they are not formally known to the government) so are not taxed.
 - Not all economic activities in the informal economy are necessarily illegal, such as subsistence farming and bartering (swapping). It can provide employment opportunities for the poorest members of society, such as women and underprivileged members of the population.
 - A study by the International Labour Organization (ILO) in 2018 revealed that 61 per cent of workers (2 billion people worldwide) are engaged in some kind of economic activity in the informal economy. However, this is far more apparent in ELDCs, accounting for up to 90 per cent of total employment. A significant proportion of this is contributed by the large number of female labourers who work in the informal sector, such as agriculture.
 - However, the informal economy is a major obstacle to achieving development because unofficial economic activities are very difficult to monitor and regulate. In addition, the individuals and enterprises involved do not pay any taxes to help fund government expenditure on merit and public goods for the benefit of society as a whole.
 - Furthermore, the informal sector creates some substantial and ethical challenges such as the issue of child labour or the exploitation of workers in ELDCs. According to the International Labour Organization: 'Informal economies are typically characterized by a high incidence of poverty and severe decent work deficits. Without formalization, decent work for all and equity in society will remain an illusion.'

- **Capital flight** – This occurs when there are large-scale withdrawals of assets and capital resources from a country due to economic and political uncertainties. It is considered undesirable as the withdrawal of assets and investments from the country impedes the nation's prospects for growth and development.
 - Capital flight can be extremely harmful to the host country as it is a cause and consequence of a lack of investor confidence in the economy. This can be a major hindrance to the economy's development.
 - It is often associated with countries troubled by political turmoil, social unrest, civil war and international conflict, and a subsequent increase in crime rates.
 - Capital flight can harm the international competitiveness of a nation, thereby discouraging other MNCs from investing in the country. Hence, it also leads to unemployment and a reduced national income in ELDCs.
- **Indebtedness** – Indebtedness is the condition of owing money. All forms of debt, including public sector debt, corporate debt and the debts of private individuals, can slow down the economic growth and development of a country.
 - A lower level of indebtedness can be brought about by reduced interest rates (which reduces the amount of debt interest) or by higher national income. Hence, a lower level of indebtedness tends to be conducive to economic growth and development.
 - Debt becomes uncontrollable if a country continuously borrows money beyond its means as the amount of debt accumulates due to the accrued interest on the loans. Many low-income countries struggle to repay their debts so are forced into borrowing even more money. The country falls into a spiral of ever-increasing indebtedness, thereby jeopardizing its growth and development.
- **Geography including landlocked countries** – Evidence suggests that access to good transportation links, especially in terms of sea routes, is a major contributing factor for a country's economic prosperity.
 - Agriculture output is heavily influenced by geography. Regions with high soil fertility and favourable climates enjoy higher agricultural production. By contrast, people living on arid (unfertile) land areas often struggle beyond subsistence farming for their livelihoods. Factors such as soil erosion, crop parasites, water availability and humidity play havoc in the agricultural sector.
 - Cities such as London (with the River Thames), Paris (River Seine), Amsterdam (Amstel River), Shanghai (Huangpu River) and Hong Kong (Victoria Harbour) have thrived from having access to rivers and seas to facilitate world trade.
 - By contrast, landlocked countries may struggle to export their products and face delays in importing essential materials and components required for production. Again, this limits a country's ability to grow and develop.
- **Tropical climates and endemic diseases** – Countries with tropical weather may have the finest beaches and the best tropical fruits, but they are also susceptible to the deadliest endemic diseases in the world.
 - Warm weather conditions in the tropics are ideal for bacterial infections. For example, malaria, a predominantly tropical disease spread by mosquitoes, kills approximately 655,000 people each year. According to UNICEF, malaria is the third biggest killer of children globally, even though the disease is preventable and treatable. Other diseases like diphtheria and measles also thrive in tropical climates.

- Endemic diseases like malaria, measles, polio and the hepatitis A virus reduce labour productivity and can change the age structure of the country. Population growth often increases to make up for a high death rate. As a result, these countries have fewer resources per capita to sustain their livelihoods.
- High population growth also tends to lead to a lower quality of life, limited access to education, basic amenities and healthcare. High fertility rates force women to look after their families, thereby preventing them from joining or remaining in the workforce.

■ Political and social barriers (AO2)

The IB syllabus states four types of political and social barriers to economic growth and/or development: (1) a weak institutional framework, (2) gender inequality, (3) the lack of good governance, and (4) unequal political power and status.

- **Weak institutional framework** – This refers to the established systems, structures and contexts that shape economic behaviour in a country. It includes cultural norms, the financial framework and the country's legal system.
 - An ineffective institutional framework, such as a poor law and order system, deters overseas firms from doing business in the country. Hence, an effective institutional framework is critical to countries achieving economic growth and development through domestic and international trade.
 - There are four aspects of a weak institutional framework: (1) the legal system, (2) ineffective tax structures, (3) the banking system, and (4) the protection of property rights.
 - *The legal system* – A weak legal framework is less conducive to conducting business, including the establishment of business start-ups and inward FDI, due to the lack of producer and consumer confidence in the economy.
 - *Taxation structure* – Progressive tax rates help to redistribute income and wealth within an economy. However, only a handful of the population in ELDCs pay taxes. Essentially, corruption and a poor institutional framework encourage tax evasion, which is clearly a major limitation on a country's level of economic development.
 - *The banking system* – A nation's banking system provides credit (borrowed funds) for individuals and firms to support their consumption and investment expenditure. In many ELDCs, billions of adults do not have a bank account or access to any form of formal credit. This impedes the ability of the economy to grow and develop.
 - *The protection of property rights* – Property rights are the entitlement to both tangible and intangible assets owned by an individual, organization or government, such as land rights. A monitored and regulated framework for protecting property rights ensures individuals and firms have security about their investments and property, be they physical and/or intellectual. A weak system of enforcing and protecting property rights discourages investors, especially international investors and inward FDI.
- **Gender inequality** – This limits the quantity and quality of labour resources in the production process. Reducing and removing gender inequalities and empowering women are vital steps to a country's growth and development and to reduce poverty in ELDCs.

- The global view, supported by the UNDP's Sustainable Development Goals, is that gender inequalities are detrimental to the economic growth and development of society as a whole.
- In some countries, women are not allowed to work with men, drive or vote, all of which hinders labour productivity and national output. Instead, the empowerment of women and girls can have a huge impact on their self-esteem and productivity.
- Greater gender equality and the empowerment of women across society helps to reduce social and cultural discrimination against females, thereby improving their well-being and that of their children and families.
- **Lack of good governance/corruption** – Good governance, including suppressing corruption, is a prerequisite for sustainable economic growth and development.
 - Corruption is dishonest or fraudulent conduct by government officials, firms and/or individuals, which typically involves bribery and tax evasion. It is deceitful so is detrimental to economic growth and development.
 - Corruption also causes a misallocation of resources due to a lack of good governance. It tarnishes the legality and dependability of a country. Hence, a high degree of corruption makes it unattractive for investors, which hinders growth and development.
 - Data from the World Bank and IMF suggest that bribery is more dominant in ELDCs and emerging (middle-income) countries, although there are disparities between regions of a country.
- **Unequal political power and status** – Historically, in all societies and civilizations, the rich have been in a position of power, whether it is in the context of economics, society or politics.
 - Unequal political power and status means that millions of women, indigenous peoples and ethnic minorities continue to be excluded from global progress on development. The most vulnerable groups of people include females, refugees and migrants, rural dwellers, people with disabilities and the LGBTI community.
 - Social and economic exclusion and intolerance of the majority of the population prevent economic progress reaching everyone, thereby constraining growth and development in the economy as a whole.
- **Significance of different barriers to economic growth and/or economic development (AO3)**
 - The economic, political and social barriers to growth and development (discussed in this chapter) are of varied importance and depend on the context being examined.
 - Countries experience different degrees of these barriers, such as poor infrastructure, human capital inadequacies, over-dependency on primary resources, capital flight, poor governance, indebtedness, gender inequalities and so forth.
 - Poor infrastructure, a restrictive business environment and declining agricultural productivity all contribute to the lack of growth and development in Madagascar, for example. For Burundi, the barriers are poor economic planning and a high degree corruption, along with over-dependence on agricultural output.
 - Essentially, evaluating the significance of different barriers to growth and development must be done in the context of the country under examination and its specific circumstances, needs and priorities.

- There are five domestic factors (those within the control of the domestic country, at least to some extent) that contribute to the economic development of ELDCs: (1) education and health, (2) the use of appropriate technology, (3) access to credit and micro-credit, (4) the empowerment of women, and (5) income distribution.

PAPER 1 EXAM PRACTICE QUESTION 35.1

Explain **two** economic barriers to economic growth and economic development.

[10 marks]

PAPER 1 EXAM PRACTICE QUESTION 35.2

Explain **two** political and/or social barriers to economic growth and economic development.

[10 marks]

Chapter summary

- The poverty cycle (or poverty trap) is a model that shows a combination of factors that perpetuate a reoccurring sequence of poverty. Government intervention is essential to break the poverty trap to prevent causing greater hardship for future generations.
- Low-income earners spend most, if not all, of their income on meeting their essential needs, so have insufficient funds to invest in their future and thus remain stuck in poverty.
- The economic factors that act as a barrier to economic growth and economic development are: (1) rising economic inequality, (2) lack of access to infrastructure and appropriate technology, (3) low levels of human capital (due to the lack of access to healthcare and education), (4) over-dependence on primary sector production, (5) lack of access to international markets, (6) the informal economy, (7) capital flight, (8) indebtedness, (9) geography (including landlocked countries), and (10) tropical climates and endemic diseases.
- There are also political and social factors that can act as barriers to economic growth and development: (1) a weak institutional framework (weak legal system, ineffective taxation structures, poor banking system and lack of protection of property rights), (2) gender inequality, (3) lack of good governance or widespread corruption, and (4) unequal political power and status.
- All forms of barriers to development, be they economic, political or social factors, contribute in different ways to hinder economic growth and development for different countries, that all face different contexts and unique circumstances.

Economic growth and/or economic development strategies

- **Strategies to promote economic growth and/or economic development (AO2, AO4)**
- Governments adopt a variety of strategies to tackle barriers to economic growth and development and to achieve a higher standard of living.
- The IB syllabus specifies the following ten strategies to promote economic growth and development: (1) trade strategies, (2) diversification, (3) social enterprise, (4) market-based policies, (5) interventionist policies, (6) provision of merit goods, (7) inward foreign direct investment, (8) foreign aid, (9) multilateral development assistance, and (10) institutional change.

TOP TIP!

This final section of the syllabus requires all students to be able to draw appropriate diagrams used in the other sections of the syllabus. For example, the provision of merit goods, as a strategy to achieve growth and development, generates positive spillover effects to the community, helping the country to achieve economic development in the long run. As such, make sure you are able to use a market failure diagram to show the impacts of merit goods.

- **Trade strategies** – Economists believe there are potential net gains for countries that engage in international trade, enabling them to experience greater levels of economic growth and development.
 - For example, export revenues for domestic producers help to increase aggregate demand and increased employment opportunities in the economy.
 - Primary sector output tends to dominate GDP and employment. However, primary sector output tends to receive lower prices than secondary or tertiary sector output, thus worsening the conditions of trade for ELDCs in the long term. Ultimately, this leads to lower standards of living in the ELDC unless appropriate strategies are used to diversify trade from the country.
 - Trade strategies that ELDCs can use to promote economic growth and/or development are: (1) import substitution, (2) export promotion, and (3) economic integration.
 - *Import substitution* is an inward-looking strategy that encourages domestic production and the purchase of domestic output through protectionist measures such as tariffs and quotas. In theory, this protects domestic employment.
 - *Export promotion* is an outward-looking trade strategy that focuses on greater international trade. It is an export-led growth strategy to increase the productive capacity of the country.
 - *Economic integration* is the process of countries being more interdependent and economically unified, mainly through the reduction and removal of barriers to trade. Greater economic integration creates increased flows of goods and services and investments between countries, which tends to generate economic benefits for all trading partner countries.

- **Diversification** is a growth and development strategy that involves ELDCs broadening their supply of goods and services in export markets and accessing larger markets to spread risks, rather than relying on a small range of (mainly) primary sector output.
 - Diversification helps ELDCs to overcome the problems of over-specialization (which tends to limit economic growth and development for many low-income countries) and creates employment opportunities in the domestic economy.
 - Such a strategy involves an ELDC diversifying its production with greater emphasis placed on the manufacturing (secondary) industry.
 - In particular, diversification may be a sensible strategy for a smaller or land-locked country so that it is not overly dependent on a single or few sources of income.
 - However, diversification requires long-term plans and investment, involving training and skills development of the country's human resources and careful financial planning.
- **Social enterprise** – These organizations focus on meeting specific social objectives, rather than primarily aiming to earn a profit for their owners. Instead, they aim to maximize improvements in social and environmental well-being. For example, Oxfam International is a charitable organization that strives to end the inequalities and injustices that cause poverty around the world.
 - Social enterprises pursue social goals such as support for children, the elderly or unprivileged persons, as well as protection of the local environment (such as protecting local heritage or developing sustainable tourism to support the local community).
 - Data from the Global Entrepreneurship Monitor (GEM) research project, the world's largest ongoing study of entrepreneurship, indicates there is a positive relationship between the level of involvement of social enterprises in ELDCs and the level of economic development. For instance, the services provided by social enterprises typically align well with the ecological and environmental needs of the local community.
 - However, sceptics argue that social enterprises are not a long-term solution because these organizations lack the profit incentive to achieve development goals and might only get involved to gain a positive corporate image for their own financial gain.
- **Market-based policies** – These are dynamic outward-looking macroeconomic strategies used to achieve economic growth and development via free market forces.
 - They focus on liberating industries from bureaucratic rules and regulations as well as improving market incentives to increase the level of economic output. Such policies also create incentives to invest in the economy.
 - The IB syllabus specifies three market-based policies to help achieve economic growth and development: (1) trade liberalization, (2) privatization, and (3) deregulation.
 - *Trade liberalization* – This refers to growth and development policies that encourage free trade, including the free movement of capital flows, by removing barriers to international trade. This helps to encourage more competition and greater efficiency in export markets, which benefits citizens of the country.

- *Privatization* – This strategy is about selling or transferring public sector assets to the private sector. This helps to improve competition, efficiency and productivity in privatized markets. It can encourage firms to become more innovative in order to survive and be profitable. In many ELDCs, there is widespread corruption and inefficiencies, so a transfer of ownership can offload the burden and ongoing running costs and expose the industry to competition.
- *Deregulation* – This refers to the reduction or removal of statutory barriers to entry in certain industries, thereby enabling the market to allocate resources more competitively and effectively. In general, deregulation benefits firms and the consumers as it limits the inefficiencies created by excessive government control and administrative procedures and processes.
- **Interventionist policies** – These are growth and development strategies used by a government to deal with market imperfections in order to improve the productive capacity of the economy. They help to correct market deficiencies and redistribute income and wealth in the economy. The main redistributive policies are:
 - (1) progressive tax policies, (2) transfer payments, and (3) minimum wages.
 - *Tax policies* – These are a key redistribution policy to support the poorest members of society. Progressive taxes help a country to reduce inequalities as low-income individuals are more likely to spend any extra income they receive, thereby raising the level of consumption in the economy. Lower personal income taxes can also be used to create incentives to work and lower rates of corporation tax encourage firms to invest.
 - *Transfer payments* – These are financial assistance provided to less fortunate members of society without any corresponding change in national output, such as state pensions, unemployment benefits and child allowances (or child benefits). These payments help to improve the welfare of the most disadvantaged and marginalized members of society, providing them with opportunities that would not exist with interventionist policies.
 - *Minimum wages* – These policies protect the welfare of the lowest paid workers as employers are legally required to pay their workers at least the statutory minimum amount of pay per time period (usually per hour). In theory, this helps every worker to be able to afford at least the basic necessities.
- **Provision of merit goods** – Merit goods are products that have positive externalities of consumption, so their provision generates social benefits that exceed private benefits.
 - Merit goods are under-provided and under-consumed in the free market. Without government intervention, the poorest members of society do not have sufficient access to such goods and services.
 - The provision of merit goods includes: (1) education programmes, (2) health programmes, and (3) infrastructure (energy, transport, telecommunications, clean water and sanitation).
 - *Education programmes* – Effective education programmes ensure there are spillover benefits to the country because the social benefits accrued from education and training surpass the private benefits in the long run. Education improves the chances of attaining a higher standard of living and therefore escaping the poverty trap.

- *Health programmes* – The provision of a good healthcare system generates numerous benefits to society and enables the workforce to be healthy and productive. Universal access to vaccinations can prevent the spread of contagious diseases and pandemics.
- *Infrastructure* – This refers to the physical structures and facilities required for the efficient running of a country. Appropriate infrastructure can also encourage inward foreign direct investment (FDI) to support economic growth and development. Infrastructure includes: (a) energy, (b) transport, (c) telecommunications, and (d) clean water and sanitation.
 - *Energy* – Access to energy is a prerequisite to industrial production. In particular, green and clean energy sources enable a country to use affordable and reliable energy in the long run, which facilitates economic development and sustainability.
 - *Transport* – An effective transportation network and efficient public transport system help to reduce congestion, promote environmental sustainability and improve social welfare. However, investment in transportation infrastructure requires significant funding from the government and transportation companies. This remains a huge challenge for many ELDCs.
 - *Telecommunications* – Investments in telecommunications, such as stable and reliable broadband and wireless internet infrastructure, help to foster effective communications, facilitate education, strengthen healthcare provision, and enhance the banking system. Good telecommunications infrastructure attracts FDI, which helps to create more jobs and increase per capita income. However, the high financial costs of investments in telecommunications infrastructure remain a huge barrier to growth and development in ELDCs.
 - *Clean water and sanitation* – This is the sixth Sustainable Development Goal, which states that UN members should strive to ensure the availability and sustainable management of clean water and sanitation by 2030. To put this into perspective, it was reported by the United Nations (2018) that there are more people on the planet with a mobile phone than there are people with flush toilets. By contrast, the lack of access to clean drinking water and sanitation deprives communities of a happy and healthy life. According to the UN, bad sanitation facilities kill around 280,000 people each year (or 32 people every hour).
- **Inward foreign direct investment (FDI)** – This refers to the money devoted by multinational companies (MNCs) to business operations abroad, such as production facilities in overseas markets or acquiring (taking over) at least 10 per cent of a foreign company operating abroad. Hence, FDI expenditure can help to improve economic growth and development in ELDCs. For example, China's investment projects in Latin America and sub-Saharan Africa have helped to create jobs and boost economic growth in these regions. To attract inward FDI, the governments of ELDCs often offer MNCs incentives to locate in their country, such as tax rebates, grants, subsidies and cheaper rents.

TOP TIP!

Students often comment that MNCs exploit workers in ELDCs by paying them low wages. While the wages are comparatively lower than in the MNC's home country, the payments are generally higher than the wages paid by local firms in the host country. It would be unreasonable to expect MNCs to pay workers in Suriname, Pakistan or Nicaragua the same wages as workers in Germany, Norway and the USA owing to differences in the cost of living.

- **Foreign aid** – This refers to assistance in the form of money, goods and/or services from a more economically developed country (MEDC) to ELDCs. It is concessional and non-commercial, that is, it is a gift from the donor country rather than a loan for monetary gain.
 - Foreign aid helps to make up for the shortcomings of the free market that fails to support ELDCs during times of economic need, such as emergency humanitarian aid following a major natural disaster in the country. Without foreign aid, many of the world's poorest countries would struggle to ever get out of the poverty cycle.
 - The IB syllabus specifies four categories of foreign aid: (1) humanitarian aid/development aid, (2) debt relief, (3) Official Development Assistance (ODA), and (4) support from non-governmental organizations (NGOs).
 - *Humanitarian aid/development aid* – This is compassionate foreign aid usually given to save lives and maintain human dignity in response to major natural disasters and national emergencies such as famine or war. It typically consists of food aid, medical aid and emergency relief aid.
 - *Debt relief* – This refers to the partial or total remission of foreign debts owed by ELDCs. Foreign debt is a serious concern for many ELDCs due to the burden of cumulative interest payments and strict loan terms, which often result in large opportunity costs, such as cutting expenditure on education and healthcare to repay these loans. Hence, debt forgiveness can give ELDCs a lifeline and promote economic and social instability, growth and development.
 - *Official Development Assistance* – ODA is foreign financial assistance from donor governments, rather than from NGOs or not-for-profit organizations such as charities. ODA is used specifically for development purposes. It includes grants as well as concessional loans offered at preferential interest rates. The UN has advocated that MEDCs should spend 0.7 per cent of their GDP on ODA to help ELDCs eradicate poverty and become self-sufficient.
 - *Support from non-governmental organizations* – Many international and local NGOs are active in ELDCs, carrying out major humanitarian work. Larger NGOs are often supported or endorsed by politicians, celebrities and academics, enabling the NGOs to have greater influence and access to foreign aid. NGOs also lobby governments for a better future and to create greater opportunities for growth and development.

TOP TIP!

Not all debt is detrimental to the well-being of ELDCs. This will depend on the level of affordability of the debt. Borrowing money to fund infrastructure can certainly be beneficial to ELDCs – it is when the foreign debt is unaffordable and poorly managed that problems arise.

- **Multilateral development assistance** – MDA is financial support delivered through international institutions, such as the World Bank, the International Monetary Fund (IMF) and the United Nations (UN).
 - These institutions consist of member governments from across the world that pool their resources together, which enables large-scale development programmes to be funded. MDA often takes the form of non-concessionary loans (lending that incurs interest and repayment periods determined by market forces) but specifically for development purposes.
 - The majority of MDA finance is for physical capital projects, such as irrigation systems, road networks, schools, hospitals and transportation systems.
 - The World Bank is the international organization that lends money to ELDCs for economic development projects and programmes for structural change. It was set up in 1944 to provide foreign development assistance (concessionary and non-concessionary lending) to low- and middle-income countries to reduce poverty and improve standards of living.
 - The International Monetary Fund (IMF) is an international multilateral financial institution set up in 1944 (same as the World Bank) to oversee the international financial system and to promote global monetary co-operation. This includes providing MDA and making short-term non-concessional loans to ELDCs and highly indebted poor countries (HIPC).
- **Institutional change** – This refers to variations in ideas, expectations, rules and practices that govern human interactions and ways to achieve development in society. The IB covers five aspects of institutional change: (1) improved access to banking, (2) increasing women's empowerment, (3) reducing corruption, (4) property rights, and (5) land rights.
 - *Improved access to banking, including microfinance and mobile banking* – Without access to credit, ELDCs do not have the necessary money to invest, which hinders innovation and skills development in the economy. In turn, this creates more employment, less inequality and less poverty. *Microfinance* refers to small sums of funds borrowed by individuals in ELDCs for self-employment purposes so that entrepreneurs can generate income for themselves and their families. In particular, microcredit can be used to empower women. *Mobile banking* is a service provided by financial institutions that allow their customers to conduct financial transactions remotely using a mobile device, such as a smartphone, tablet computer or laptop, enabling many more people to access banking services without having to physically get to a bank to do so.
 - *Increasing women's empowerment* – Gender inequality is a significant barrier to economic development as it deprives women of economic opportunities and financial independence. Hence, empowering women is a vital strategy to reduce poverty and improve their standard of living. In the long term, increasing women's empowerment has positive impacts on productivity, economic growth and development.
 - *Reducing corruption* – Tackling dishonesty or fraud by those in a position of power and authority through a well-structured and well-enforced legal system and good governance is an essential prerequisite to development. Dishonest or illegal conduct by government officials, lawmakers and others in a position of power is immoral, inefficient and harmful to economic growth and development.

- *Property rights* – These are the legal entitlement to physical and intangible assets of the owners. The proper planning, implementation and enforcement of property rights help business owners to feel assured of their investments in a country. This helps to attract inward foreign direct investment (FDI). By contrast, the lack of property rights creates a major barrier to economic growth and development.
- *Land rights* – Land ownership is an important source of security, income and wealth. For many people, land rights are vital in giving them a basic means of living. There is a direct link between the absence of land rights and poverty and hunger in a country. A higher quality of life can also be achieved by providing, extending and enforcing land rights to poor people in rural areas of the country.

■ Strengths and limitations of strategies for promoting economic growth and economic development (AO3)

- The ten strategies mentioned above, used to achieve economic growth and development, all have their relative strengths and limitations. Hence, governments and policymakers use different combinations of these strategies, depending on the context of the country, budgetary constraints, political and social influences, and the degree of good governance.
- In general, the larger the population, the more challenging it is for a government's policies to have the desired impact on everyone in the country. For instance, the one-child policy used in China between 1979 and 2015 was empirically proven to aid economic development in the world's most populous country. However, such a policy may be inappropriate or undesirable for many free-market and democratic countries.
- Good governance of growth and development plans and finances is also vital to the success of any growth and development strategy. This has enabled Uruguay, Bhutan and Botswana to uphold developmental initiatives, whereas Yemen, Venezuela and Libya have squandered resources set aside for developmental initiatives. The lack of transparency in government affairs and accountability in some countries has prevented them from achieving their growth and development targets.
- Furthermore, while ELDCs share common characteristics, it can be rather naïve to assume that *all* ELDCs have the same features and that there are no exceptions to these generalizations. For example, although GDP per capita may be low in ELDCs, there can certainly be extremely wealthy individuals in the country. Hence, redistributive policies should be considered when examining the relative strengths and limitations of strategies for promoting economic growth and economic development.

TOP TIP!

It is important to remember that what works for one country at a particular point in time may not necessarily be the case for other nations.

■ Strengths of government intervention versus market-oriented approaches to achieving economic growth and economic development (AO3)

The strengths of government intervention to achieve economic growth and development include:

- Without government intervention, there would be a lack of essential infrastructure such as roads, railways, ports, telecommunications networks, sewage structures and flood control systems.

- The private sector is unlikely to provide sufficient investments in human capital through education and training, especially in ELDCs. Thus, interventionist policies are required to tackle this shortfall.
- Development requires government intervention to provide a safe and stable economic environment to protect the interests of all members of society. A stable economy is also conducive to attracting inward FDI to further improve growth and development.
- Interventionist policies through direct government provision and a social welfare system help to ensure there is a social safety net so that all citizens have access to basic necessities, thus preventing absolute poverty in the economy.
- Interventionist policies are used to tackle income and wealth inequalities, which hinder the development of ELDCs. For example, cultural and historical contexts in many countries mean that women are not given the same opportunities as men. Thus, intervention is necessary to correct such disparities.
- Intervention is required when a country faces a major emergency or disaster, such as civil war or the outbreak of an infectious pandemic. Without intervention, there will be a decline in output, jobs and FDI, and hence a fall in standards of living.

The strengths of market-orientated policies to achieve economic growth and development include:

- Market-oriented growth and development policies, such as deregulation and privatization, help to allocate resources more efficiently than through government intervention, which distorts market forces. This helps to increase the overall level of economic activity.
- Market-based strategies such as labour market reforms create incentives to work and invest in the economy. These approaches help to improve labour market flexibility and productivity as well as improve the international competitiveness of the economy.
- The profit motive encourages entrepreneurs to work hard and to take risks, such as expenditure on investments and innovation, so has a positive impact on economic growth and development in the long run.
- Freer and fairer trade policies can lead to increased consumer choice, lower prices and improved quality. They enable firms to access a larger customer base, which contributes to greater profits, employment, economic growth and development.
- Trade liberalization (reducing or removing barriers to international trade) is important for attracting inward FDI. Creating investment opportunities is important for sustainable development of an economy.

■ Limitations of government intervention versus market-oriented approaches to achieving economic growth and economic development (AO3)

The limitations of government intervention to achieve economic growth and development include:

- Excessive bureaucracy (administrative systems, formal structures, rules and regulations that govern economic activity) in ELDCs often leads to economic inefficiencies rather than economic growth and development.

- Poor planning, political instability and conflict are commonly found in many ELDCs, all of which cause major delays to achieving economic growth and development. The lack of market incentives means that government planning is often impractical and ineffective, so limits the opportunities for growth and development.
- Corrupt, dishonest and deceitful public sector officials that misuse government finances limit the effectiveness of policies intended to promote growth and development. Corruption reduces trust and collaboration between individuals, firms and governments. This also deters inward FDI.

The limitations of market-oriented approaches to achieve economic growth and development include:

- Market-orientated policies are unable to deal with market failures. For example, ELDCs also lack sufficient funds to provide merit goods such as education and healthcare, so there is a strong case for government intervention to correct such market failures.
- The development of a dual economy occurs with different levels of development. It is common in ELDCs to have a low-income agricultural sector catering for local demand of the majority of the population and another manufacturing sector for export-driven international markets. This creates growing disparities within the economy.
- The advantages of economic growth and development do not always trickle down to benefit the poorest members of society, so government intervention is required to tackle the problems of income and wealth inequalities.

TOP TIP!

When evaluating the effectiveness of strategies used to achieve growth and development, it can be useful to discuss the relative effectiveness between interventionist-based policies and market-based policies, written in the context of real-world examples.

TOP TIP!

Owing to the relative merits and limitations of interventionist policies and market-based policies, a complementary approach may be the best way for countries to achieve growth and development. Evidence suggests that neither extreme works well in the real world.

■ Progress towards meeting selected Sustainable Development Goals in the context of two or more countries (AO3)

The final learning outcome in the IB Economics syllabus requires you to be able to discuss and evaluate the progress towards meeting selected SDGs in the context of two or more countries. A broad summary of the global situation is outlined below, but make sure you are able to explain the progress made for your two (or more) chosen countries.

- **Goal 1: No poverty** – Even before the COVID-19 coronavirus pandemic, progress towards SDG1 had slowed, and the world was not on track to end extreme poverty by 2030. Forecasts suggest that 6 per cent of the global population would still be living in extreme poverty in 2030. Southern Asia and sub-Saharan Africa are expected to see the largest rise in extreme poverty, with an extra 32 million and 26 million people, respectively, living below the international poverty line due to the pandemic.

- **Goal 2: Zero hunger** – Almost 690 million people were undernourished in 2019, up by nearly 60 million from 2014. Diseases continue to affect the growth and cognitive development of millions of children. The situation is likely to get worse owing to economic slowdowns and disruptions caused by a global pandemic-triggered recession.
- **Goal 3: Good health and well-being** – There has been satisfactory progress in improving the health of millions of people. Maternal and child mortality rates have been reduced, life expectancy continues to increase globally, and the fight against some infectious diseases has made steady progress. However, the COVID-19 pandemic has thrown such progress off track, causing a significant loss of life and overwhelming healthcare systems.
- **Goal 4: Quality education** – Even before the worldwide coronavirus crisis, forecasts showed that around 258 million children would be out of school and only 60 per cent of people would be completing upper secondary education in 2030. Disparities in educational opportunities and outcomes are found across all regions, while sub-Saharan Africa and parts of central and southern Asia lag behind. As a result, many students are not being adequately prepared to participate in an overly complex global economy.
- **Goal 5: Gender equality** – Although anti-discriminatory laws are widespread, it remains that many women and girls continue to suffer from all forms of gender inequalities. However, fewer girls are forced into early marriage and more women are serving in parliament and positions of leadership. Nevertheless, it remains that women and girls perform a disproportionate share of unpaid care and domestic work and continue to be denied decision-making power.
- **Goal 6: Clean water and sanitation** – Despite progress, billions of people around the globe (mostly in rural areas) still lack these basic services. Most rivers in Africa, Asia and Latin America are more polluted now than they were in the 1990s. An estimated 50 to 70 per cent of the world's natural wetland areas have been lost over the last 100 years. Plastic waste in rivers and oceans has worsened the problem.
- **Goal 7: Affordable and clean energy** – The world is making progress towards this goal with encouraging signs that energy is becoming more sustainable and widely available. Access to electricity in poorer countries has begun to accelerate, while energy efficiency continues to improve and renewable energy is making notable gains in the electricity sector. However, around 1.3 billion people still do not have access to reliable electricity.
- **Goal 8: Decent work and economic growth** – Many ELDCs have achieved economic growth and labour productivity is rising, although wide disparities exist between different regions. The outbreak of the coronavirus in 2019 halted growth for the world economy, derailing the progress made for this goal. Even the USA saw a record 44.2 million people unemployed (July 2020). The pandemic has caused the biggest increase in global unemployment since the Second World War.
- **Goal 9: Industry, innovation and infrastructure** – Despite recent progress, industrialization in ELDCs is still too slow to meet the target by 2030. In particular, ELDCs need to increase their investment in scientific research and innovation. Furthermore, growth in manufacturing has decelerated despite manufacturing jobs being an essential source of income in ELDCs and is key to poverty reduction.

- **Goal 10: Reduced inequalities** – Income inequality continues to rise in many parts of the world, even as the poorest members of the population in most countries experience income growth. Greater effort is needed to reduce inequalities, including those related to labour market access and trade. The COVID-19 crisis has made inequalities worse and is hitting the most vulnerable people hardest.
- **Goal 11: Sustainable cities and communities** – Since 2007, more than half the world's population has been living in cities, and that share is projected to rise to 60 per cent by 2030. Rapid urbanization and population growth are outpacing the construction of adequate and affordable housing. Safe public transportation, reliable basic services and open public spaces are especially important to ensure the health and livelihoods of urban residents.
- **Goal 12: Responsible consumption and production** – The lifestyles of many people in the wealthiest nations are heavily dependent on resources extracted from poorer countries. The unfavourable developments in energy consumption (such as the use of fossil fuels) as well as the volume of food waste remain large concerns. Achieving SDG12 will mean improvements in resource efficiency and consideration of the entire life cycle of economic activities.
- **Goal 13: Climate action** – According to the UNDP, climate change is the most defining issue of our time and the most significant challenge to sustainable development. The compounding effects of climate change are speeding up, leaving even less time for people, firms and governments to act. Unprecedented changes in all aspects of society will be required to avoid the worst effects of climate change, bringing with it massive wildfires, hurricanes, droughts, floods and other climate disasters across all continents.
- **Goal 14: Life below water** – Oceans and fisheries are vital to supporting the planet's economic, social and environmental needs. An increase in pollutants, acidification and plastic ocean waste is threatening marine life and ecosystems, thereby hampering the ocean's role in moderating climate change. Despite protection of marine areas being doubled since 2010, more must also be done to safeguard key biodiversity areas.
- **Goal 15: Life on land** – Although loss of forests is slowing, it continues at an alarming rate; one million plant and animal species are at risk of extinction and an estimated 20 per cent of the Earth's land area was degraded between 2000 and 2015, impairing the lives of one billion people. To meet SDG15, there is a need to progress with the protection and expansion of sustainable forest management to protect biodiversity and ecosystems.
- **Goal 16: Peace, justice and strong institutions** – Achieving the goal of peaceful, just and inclusive societies is still a long way off. No substantial advances have been made in ELDCs towards ending violence, upholding the rule of law, strengthening institutions at all levels, or improving access to justice. Millions of people have been deprived of security, human rights and economic opportunities, while attacks on human rights activists and journalists are holding back development. In 2019, the number of people fleeing war, persecution and conflict exceeded 79.5 million – the highest level recorded by the UN.
- **Goal 17: Partnership for the goals** – Global support for implementing the SDGs is steady but fragile, and major challenges remain. A growing share of the global population has access to the internet and mobile banking for ELDCs has been established, yet a huge digital divide persists. However, Official Development Assistance (ODA) is declining and very few countries comply with the UN-recommended 0.7 per cent of their GDP to ODA. The aftermath of the COVID-19 pandemic means financial resources remain scarce.

PAPER 1 EXAM PRACTICE QUESTION 36.1

Explain **two** market-based strategies that can be used to promote economic growth and/or economic development. [10 marks]

PAPER 1 EXAM PRACTICE QUESTION 36.2

Explain how intervention through the provision of merit goods, such as education and healthcare programmes, improves economic growth and/or economic development. [10 marks]

PAPER 1 EXAM PRACTICE QUESTION 36.3

Using real-world examples, discuss the strengths and limitations of interventionist approaches and market-based approaches to achieving economic growth and/or development. [15 marks]

PAPER 1 EXAM PRACTICE QUESTION 36.4

Explain **two** trade strategies that can be used to achieve economic growth and/or economic development. [10 marks]

Chapter summary

- Governments can use a variety of strategies to promote economic growth and development in order to achieve a higher standard of living for their people. These strategies include: (1) trade strategies, (2) diversification, (3) social enterprises, (4) market-based policies, (5) interventionist policies, (6) provision of merit goods, (7) inward foreign direct investment, (8) foreign aid, (9) multilateral development assistance, and (10) institutional changes.
- Trade strategies include: (1) import substitution (inward development strategy), (2) export promotion (outward development strategy), and (3) economic integration (through a complete or partial removal of tariff and non-tariff restrictions on international trade).
- Diversification helps to overcome the problems of over-specialization (which tends to limit economic growth and development for many ELDCs). It also helps to create employment opportunities in the long term.
- Social enterprises strive to create positive social change and improvements in environmental well-being, such as offering support for vulnerable groups in society such as children, the elderly or unprivileged persons.
- Market-based policies focus on increasing the productive capacity of the economy to achieve economic development. These policies include: (1) trade liberalization, (2) privatization, and (3) the deregulation of markets.
- Interventionist policies are used to correct market imperfections by redistributing resources, incomes and wealth. Such policies include: (1) progressive tax policies, (2) transfer payments, and (3) minimum wages to ensure a social safety net for all members of society.
- The provision of merit goods ensures society can consume socially desirable goods and services, irrespective of people's ability to pay. The provision of merit goods includes: (1) education programmes, (2) health programmes, and (3) infrastructure programmes. Examples of the latter include: (i) energy, (ii) transport, (iii) telecommunications, as well as (iv) clean water and sanitation in order to sustain a decent standard of living and to attract inward foreign direct investment.

- Globalization and the promotion of freer international trade from the World Trade Organization (WTO) have also encouraged a significant rise in inward FDI in ELDCs.
- Foreign aid makes up for the shortcomings of the free market that fails to help ELDCs during times of need. It comprises: (1) humanitarian aid/development aid, (2) debt relief, (3) Official Development Assistance (ODA), and (4) intermediation from non-governmental organizations (NGOs).
- Multilateral development assistance comes from institutions such as the World Bank and the IMF. They help to fund large-scale development programmes.
- Institutional change is a final growth and development strategy. This consists of five areas of change: (1) improved access to banking (including microfinance and mobile banking), (2) increasing women's empowerment (gender equality), (3) reducing corruption, (4) property rights, and (5) land rights.
- Governments and policymakers use different strategies to promote economic growth and development. However, the strengths and weaknesses of these strategies are dependent on different factors, especially the context of the country.
- Government intervention and market-oriented approaches have their respective advantages and disadvantages in achieving economic growth and development. Hence, both types of strategies are used to achieve growth and development goals.
- Although most governments across the world adopted the UNDP's 17 SDGs in 2015, commitment and progress have varied between countries and regions. At the time of writing, it is unlikely that any of the SDGs will be met by the 2030 target year.

Assessment advice

There are two examination papers in IB Economics for Standard Level (SL) students, and three papers for Higher Level (HL) students. A summary of the assessments for the course is shown in the table below.

Component	SL		HL	
Paper 1	30%	1 hr 15mins	20%	1 hr 15mins
Paper 2	40%	1 hr 45mins	30%	1 hr 45mins
Paper 3	–	–	30%	1 hr 45mins
External assessment	3 hours		4 hours 45 mins	
Internal assessment	30%	20 hrs	20%	20 hrs

Answering Paper 1 questions

■ Paper 1 at a glance – the essay paper

The Paper 1 examination is an externally examined component that is taken by all DP Economics students (HL and SL). For HL students, the paper is worth 20 per cent of the final grade. For SL students, the weighting is 30 per cent. Hence, it can be said that essays will have a greater importance in the determination of the final grade for a SL student than for a HL student. Regardless, essay writing is an important skill which is likely to play a significant part in your assessment should you choose to go to university/college.

■ The examination paper

The Paper 1 examination will consist of three questions, which can come from any part of the two-year course. You need to choose **one** of these questions to answer in 1 hour and 15 minutes. Each question is worth a total of **25 marks** and has two parts, namely *Part (a)* and *Part (b)*. The demands of each part are different (to be discussed later).

The three questions presented to each candidate can be taken from any of the four sections of the syllabus, namely:

- 1 Introduction to economics
- 2 Microeconomics
- 3 Macroeconomics
- 4 The global economy

Naturally, the SL paper will only examine content from the SL syllabus (that is, the HL extension topics will not be examined on the SL paper). HL students can be examined on the 'HL only' topics.

TOP TIP!

As with the majority of IB exams, you will get five minutes of reading time at the beginning of the exam. You should not need the whole five minutes to read three essay questions. So, use this valuable time to plan in your head how you intend to structure your essay (both parts) and how you will explicitly answer the question in a comprehensive and critical way.

TOP TIP!

With 75 minutes' writing time to complete this exam paper, there should be ample time for you to demonstrate your knowledge of economics in a critical and reflective way, using relevant theory in Section A, along with real-world examples in Section B.

You will have sufficient time to plan your essay (after the initial five minutes' reading time). Although it takes time to plan an essay, doing so has benefits as planning will help you to structure your answers more comprehensively and coherently. So, although planning takes time, it will actually save you time too.

■ The assessment criteria

Knowledge of economics is not enough to guarantee success in the examination. You are not being assessed on your knowledge of economics alone but are also being assessed on a range of skills and how well you demonstrate these in the examination.

If the assessment of this course was purely knowledge-based, then the IB might choose to use multiple-choice tests. Instead, both SL and HL students are assessed according to a set of assessment criteria.

The *IB Economics Guide* (first examinations 2022) explains this:

Assessment criteria are used when the assessment task is open-ended. Each criterion concentrates on a particular skill that students are expected to demonstrate. An assessment objective describes what students should be able to do, and assessment criteria describe how well they should be able to do it. Using assessment criteria allows discrimination between different answers and encourages a variety of responses. Each criterion comprises a set of hierarchically ordered level descriptors. Each level descriptor is worth one or more marks. Each criterion is applied independently using a best-fit model. The maximum marks for each criterion may differ according to the criterion's importance. The marks awarded for each criterion are added together to give the total mark for the piece of work.

IB Economics Guide, page 55

■ Assessment objectives and markbands

The Paper 1 examination requires candidates to demonstrate competency of the following assessment objectives (AOs):

- AO1 – Knowledge and understanding (of relevant economics theories and concepts).
- AO2 – Application and analysis (of theories and concepts relevant to the question).
- AO3 – Synthesis and analysis (of the theories, concepts and arguments put forward when answering the question).
- AO4 – Use and application of appropriate skills.

When marking your answers, IB examiners will determine your score based on published assessment criteria (below). Examiners will use a 'best-fit' approach, which allows them to place your answers within the markband that best describes your work for Part (a) and Part (b) of the essay.

■ Markbands for Paper 1 Part (a) 10-mark question essays

Marks	Level descriptor
0	<ul style="list-style-type: none"> ● The work does not reach a standard described by the descriptors below.
1–2	<ul style="list-style-type: none"> ● The response indicates little understanding of the specific demands of the question. ● Economic theory is stated but it is not relevant. ● Economic terms are stated but they are not relevant.
3–4	<ul style="list-style-type: none"> ● The response indicates some understanding of the specific demands of the question. ● Relevant economic theory is described. ● Some relevant economic terms are included.
5–6	<ul style="list-style-type: none"> ● The response indicates understanding of the specific demands of the question, but these demands are only partially addressed. ● Relevant economic theory is partly explained. ● Some relevant economic terms are used appropriately. ● Where appropriate, relevant diagram(s) are included.
7–8	<ul style="list-style-type: none"> ● The specific demands of the question are understood and addressed. ● Relevant economic theory is explained. ● Relevant economic terms are used mostly appropriately. ● Where appropriate, relevant diagram(s) are included and explained.
9–10	<ul style="list-style-type: none"> ● The specific demands of the question are understood and addressed. ● Relevant economic theory is fully explained. ● Relevant economic terms are used appropriately throughout the response. ● Where appropriate, relevant diagram(s) are included and fully explained.

■ Markbands for Paper 1 Part (b) 15-mark question essays

Marks	Level descriptor
0	<ul style="list-style-type: none"> ● The work does not reach a standard described by the descriptors below.
1–3	<ul style="list-style-type: none"> ● The response indicates little understanding of the specific demands of the question. ● Economic theory is stated but it is not relevant. ● Economic terms are stated but they are not relevant. ● The response contains no evidence of synthesis or evaluation. ● A real-world example(s) is identified but it is irrelevant.
4–6	<ul style="list-style-type: none"> ● The response indicates some understanding of the specific demands of the question. ● Relevant economic theory is described. ● Some relevant economic terms are included. ● The response contains evidence of superficial synthesis or evaluation. ● A relevant real-world example(s) is identified.
7–9	<ul style="list-style-type: none"> ● The response indicates understanding of the specific demands of the question, but these demands are only partially addressed. ● Relevant economic theory is partly explained. ● Some relevant economic terms are used appropriately. ● Where appropriate, relevant diagram(s) are included. ● The response contains evidence of appropriate synthesis or evaluation but lacks balance. ● A relevant real-world example(s) is identified and partly developed in the context of the question.

Marks	Level descriptor
10–12	<ul style="list-style-type: none"> ● The specific demands of the question are understood and addressed. ● Relevant economic theory is explained. ● Relevant economic terms are used mostly appropriately. ● Where appropriate, relevant diagram(s) are included and explained. ● The response contains evidence of appropriate synthesis or evaluation that is mostly balanced. ● A relevant real-world example(s) is identified and developed in the context of the question.
13–15	<ul style="list-style-type: none"> ● The specific demands of the question are understood and addressed. ● Relevant economic theory is fully explained. ● Relevant economic terms are used appropriately throughout the response. ● Where appropriate, relevant diagram(s) are included and fully explained. ● The response contains evidence of effective and balanced synthesis or evaluation. ● A relevant real-world example(s) is identified and fully developed to support the argument.

Source: IB Economics Guide, pages 63–64

TOP TIP!

Use a positive mindset and focus on achieving the requirements in the highest markband. When you read through your Paper 1 practice answers, try to determine whether your own work matches these criteria.

■ Command terms

Command terms relate to the assessment objective that is being assessed. This means that each command term indicates the depth that you will need to go into when you write your answers. For example, a Paper 1 examination question that uses the command term ‘explain’ requires the candidate to ‘give a detailed account including reasons or causes’ (*IB Economics Guide*, page 71). This relates to the AO2 assessment objectives. This is different from the command term ‘evaluate’, which requires a candidate to ‘make an appraisal by weighing up the strengths and limitations’ (*IB Economics Guide*, page 70). This relates to the AO3 assessment objectives.

In general, Part (a) questions use command terms that relate to AO2 and Part (b) questions will use AO3 command terms.

The full range of command terms used in IB Economics and their meanings are available on pages 74–75 of the *IB Economics Guide*.

■ Layout of Part (a) and Part (b) responses

There are several ways that a candidate can approach a question in Paper 1. What follows here should be understood as merely one method of approaching Part (a) and Part (b) Paper 1 responses. It is important that you follow the advice of your teacher.

A closer look at the assessment criteria indicates a sequence in which the assessment objectives are assessed. This is based loosely around an educational theory that your teachers will be familiar with called *Bloom’s Taxonomy*, which aims to rank learning/assessment objectives according to the degree of complexity:

Learning objectives	Notes
Specific demands of the question are understood	The candidate has identified the correct command term, section of syllabus and required depth.
Relevant economic theories are fully explained	The candidate has demonstrated correct selectivity of relevant theories and explained these appropriately in the context of the question.
Relevant economic terms are used appropriately throughout the response	The candidate uses the correct terms and provides relevant definitions where appropriate.
Where appropriate, relevant diagram(s) are included and fully explained	When a diagram is necessary (usually the case), the candidate provides a correctly labelled diagram and a full and accurate explanation written in the context of the question.
A relevant real-world example(s) is identified and fully developed to support the argument (Part (b) only)	Examples should be used to highlight economic concepts, theories and relationships in the real world. When examples are used, the candidate should not just state the example (as this is too limited) but should also explain the real-world example in relation to the question asked (<i>IB Economics Guide</i> , page 59).
The response contains evidence of effective and balanced synthesis and evaluation (Part (b) only)	The candidate demonstrates the limitations of the arguments and the theory presented in the answer. The candidate also makes substantiated judgements based on the evidence presented.

TOP TIP!

We have explained the importance of diagram, definitions, explanations and examples in your Paper 1 answers. A useful acronym is to ensure you do yourself a **DEED** in Section A of the Paper 1 exam (although not necessarily in this order):

- **D**efinitions
- **E**xamples
- **E**xplanations
- **D**iagrams

Summary

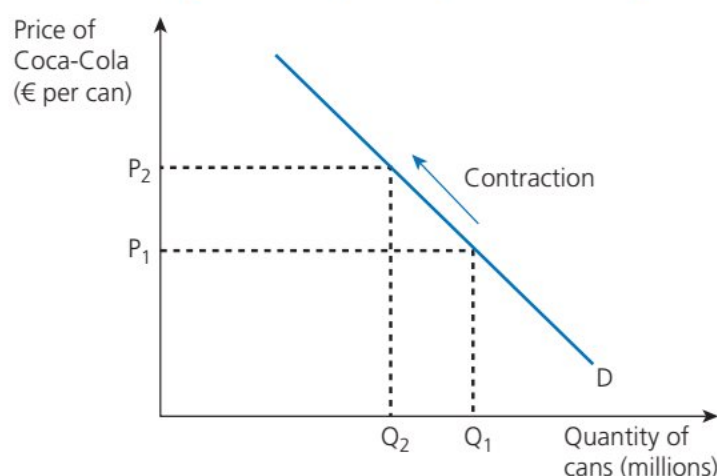
- All students take the Paper 1 examination.
- Paper 1 is an extended response paper (essay).
- The duration of the examination is 75 minutes.
- Students answer **one** question from a choice of three.
- The total number of available marks is 25 marks. Part (a) is worth 10 marks and Part (b) is worth 15 marks.
- You must use real-world examples in Part (b) of the essay.
- The examination questions cover the whole syllabus, with questions specific to respective SL and HL content in the syllabus.
- The weighting of the paper is 30 per cent for SL and 20 per cent for HL.

■ Exemplar responses

■ Exemplar 1 – Microeconomics

- a Explain why an increase in price may lead to a decrease in the quantity demanded while an increase in demand may lead to an increase in price. [10 marks]

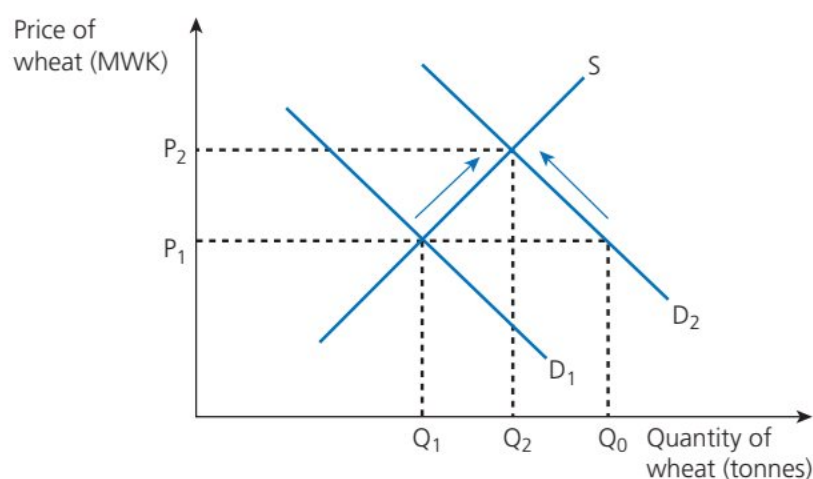
Demand can be defined as the amount of a good or service, such as Coca-Cola, bought in a market at different possible prices over a period of time. Quantity demanded is the amount of a good or service bought at a specific price over a period of time.



■ **Figure 1** The demand for Coca-Cola in France

As price and quantity demanded share a negative causal relationship, it can be seen that an increase in the price of Coca-Cola will cause a contraction in the quantity demanded. It can be seen in the diagram above that an increase in the price of Coca-Cola in France from P_1 to P_2 will result in a reduction of quantity demanded from Q_1 to Q_2 . This could be due to the income effect (as some consumers cannot afford to consume as much Coca-Cola at the higher price of P_2) and/or the substitution effect (where consumers leave the market to purchase a substitute product instead, like Pepsi, which satisfies the same needs or wants for these consumers).

Changes in the determinants of demand (which are caused by non-price factors) can cause changes in the equilibrium price of a good or service (the price at which the market clears).



■ **Figure 2** Market for wheat in Malawi

The diagram above represents the market for wheat in Malawi. A change in a non-price determinant of demand, such as an increase in income in Malawi, has caused demand to shift outwards from D_1 to D_2 . This causes an initial shortage, which is where the quantity demanded (Q_0) exceeds the quantity supplied (Q_1). This starts the rationing process, which causes a bidding war among consumers. This also signals to producers that price is likely to rise, due to the higher level of demand for wheat. Hence, prices rise from P_1 to P_2 , creating

incentives for producers to supply more wheat (from Q_1 to Q_2) and contracting quantity demanded (from Q_0 to Q_2).

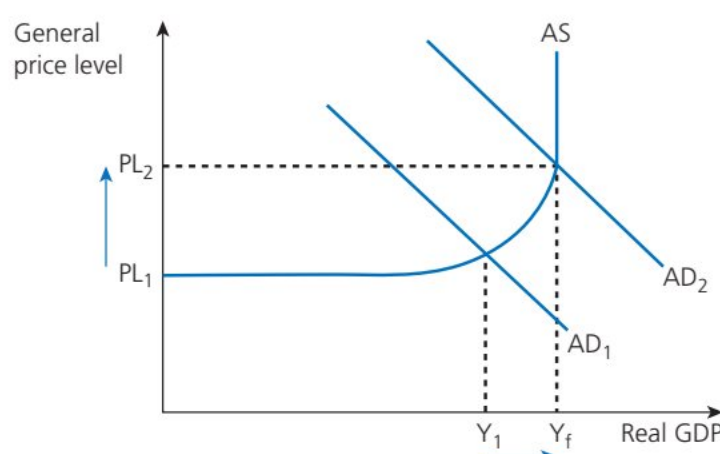
Therefore, it can be seen that a change in the price of a product (such as Coca-Cola) can impact the quantity demanded whereas a change in a non-price determinant of demand, such as a change in household income, can cause changes in price through the price mechanism (rationing, signalling and incentive). Essentially, changes in the price of a good or service cause a change in the quantity demanded and changes in demand cause changes in prices.

■ Exemplar 2 – Macroeconomics

- b Using a real-world example, evaluate the effectiveness of expansionary fiscal policy to reduce unemployment. [15 marks]

In times of unemployment, governments often adopt demand-side policies such as expansionary fiscal policy to achieve their macroeconomic objectives. Fiscal policies are a set of government policy measures relating to public sector spending and taxation. Unemployment refers to those willing, able and actively seeking work but who are not employed. Expansionary fiscal policy aims to increase consumer spending and investment expenditure in the economy (in addition to government spending).

Due to a drastic reduction in consumer confidence in the economy from the progression of the coronavirus (COVID-19) epidemic, the US economy faced an unemployment rate of 17 per cent in May 2020. In response to this, the US government proposed a \$2 trillion stimulus plan to boost employment. This is an example of expansionary fiscal policy.



■ **Figure 1** Recessionary gap in the US economy

Before the introduction of the fiscal stimulus, the coronavirus epidemic had caused a drastic reduction in consumer and business confidence in the US economy as well as around the world. This resulted in a recessionary output gap of $Y_f - Y_1$. This represents cyclical unemployment, caused by a fall in consumption expenditure in the economy. At the full employment level of national output (Y_f) only the natural rate of unemployment would exist, however due to the lack of aggregate demand (AD) in the economy, the rate of unemployment in the USA exceeded the natural rate.

In an effort to reduce the size of this output gap, the US government announced a fiscal stimulus package, which would reduce income taxation for a large section of the economy, as well as increase government spending on various discretionary projects. A reduction in income tax will increase the disposable income of households. This is a factor that impacts consumption, which itself is the largest component of AD. Therefore, *ceteris paribus*, this will cause an increase in AD (total spending in the economy) which will shift the AD curve outwards from AD_1 to AD_2 , which results in (at least a partial) closing of the US recessionary gap. The increase in AD caused by the fiscal stimulus is likely to also result in an increase in the general price level (demand-pull inflation) from PL_1 to PL_2 .

The US government also announced large infrastructure projects as part of this stimulus package. As these were declared for the purpose of stimulus (rather than supply), they can be treated as a demand-side policy. These projects will generate a substantial amount of employment (both directly and indirectly). Initially, there will need to be the employment of workers for these infrastructural projects. The increase in income that results from this will likely result in an increase in consumption in the economy which, as a component of AD, will also close part of the recessionary gap.

Due to derived demand (the demand for goods and services generating demand for labour), the increase in spending which results from the increased incomes of workers will also generate more employment throughout the economy, in what is known as the Keynesian multiplier effect. This will also help to lower the level of cyclical unemployment in the economy.

The impact of these policies on households will likely be an increase in the standard of living due to the increase in employment opportunities and incomes that they will receive. They will be able to consume more goods and services and enjoy more economic freedom. Firms will also benefit from this with an increase in revenue from the purchasing of their goods and services by newly employed workers as well as through the aforementioned multiplier effect. The government will likely need to fund the stimulus package through debt during this time. However, it will also be able to get direct and indirect tax receipts from the subsequent increases in spending arising from the fiscal stimulus.

The extent to which expansionary fiscal policy will be effective in lowering unemployment will largely depend on the marginal propensity to consume (MPC) in the US economy. If the reductions in taxation are spent by households on goods and services, then the impact on AD and cyclical unemployment will be significant. Should most households save these reductions (that is, the MPC is low), then the impact on AD will be minimal and the unemployment issue could persist for years to come.

The extent to which expansionary fiscal policy is effective at reducing unemployment also depends on the type of unemployment that is prevalent. In the aforementioned example, it is clear that

the problem faced by the economy has been caused by low levels of AD, therefore a demand-side policy like fiscal policy will be relatively effective. However, should the type of unemployment be structural or seasonal, demand-side solutions may not be so effective.

Finally, a considerable limitation of fiscal policy is the time lag that is involved with enacting the policy. In most democracies, such a policy needs to be voted upon by the various elected representatives. This causes a significant delay. In some cases, the changes in taxation will not result in any notable changes in disposable income due to time lags. This can therefore limit the effectiveness of expansionary fiscal policy.

In conclusion, while fiscal policies are often effective in lowering unemployment, a full consideration of the costs of such a policy must be made. The huge increase in the USA's national debt as a consequence of such policies can be burdensome in the long run, especially upon the young and future generations. It is therefore advisable to explore a range of macroeconomic policies in order to achieve a low rate of unemployment.

Answering Paper 2 questions

■ Paper 2 at a glance – the data response paper

The Paper 2 examination is an externally examined component that is taken by all DP Economics students (HL and SL). For HL students, the paper is worth 30 per cent of the final grade. For SL students, the weighting is 40 per cent. The duration of the examination for both SL and HL students is 1 hour 45 minutes and it covers the entire syllabus with questions specific to SL and HL content.

■ The examination paper

The Paper 2 examination consists of two questions, which can come from any part of the two-year course. You need to choose **one** of these questions to answer in 105 minutes. Each question is worth a total of **40 marks** and has sub-sections. These tend to be 2-mark and 4-mark questions in parts (a) to (f), along with a final 15-mark essay question in part (g). Use the five minutes' reading time at the beginning of the Paper 2 examination to decide which one of the two questions to answer.

The format of the paper will follow a similar pattern to the template below:

- | | | |
|----------|--|------------|
| a | (i) Define the term 'x', indicated in bold. | [2 marks] |
| | (ii) Define the term 'x' indicated in bold. | [2 marks] |
| b | (i) Using information from the text and Table 1, calculate ... | [3 marks] |
| | (ii) Draw a ... diagram to show ... | [2 marks] |
| c | Using a ... diagram, explain the ... | [4 marks] |
| d | Using a(n) ... diagram and information from the text, explain how ... | [4 marks] |
| e | Using a(n) ... diagram and information from the text, explain how ... | [4 marks] |
| f | Using a(n) ... diagram, explain what ... | [4 marks] |
| g | Using information from the text/data and your knowledge of economics, discuss methods that the ... government could use to ... | [15 marks] |

As with Paper 1, the SL paper will only examine content from the SL syllabus (that is, the HL extension topics will not be examined on the SL paper). HL students could be examined on the HL extension topics.

TOP TIP!

If you use past exam papers for examination practice, please note that Paper 2 in the previous syllabus (final exams in November 2021) has a completely different structure. In the previous course:

- Students needed to answer two questions from four, rather than **one** question from two (in the current course).
- Questions focused on only two sections of the syllabus, rather than on the entire syllabus.
- The time allocation was 90 minutes, rather than 105 minutes.
- There was less stimulus material and data compared (owing to the shorter exam).
- The final question, part (d), was worth 8 marks, rather than part (g) in the existing course which is worth 15 marks.

Essentially, if you choose to use past examination questions for Paper 2, make sure you approach these with some caution.

TOP TIP!

With 105 minutes' writing time to complete this exam paper, there should be plenty of time for you to demonstrate your knowledge of economics terminology (definition questions), diagrams, as well as critical thinking in the final 15-mark essay question.

As with Paper 1, you should have sufficient time to plan your answers, especially for the final essay question, after the initial five minutes' reading time in the exam. With the added time (compared to the previous Paper 2), use this sensibly to construct accurate and fully labelled diagrams as well as ensuring you fully explain all aspects of the diagrams.

TOP TIP!

The IB has suggested the following approximate timings (time allocations) for the Paper 2 examination, in addition to the five minutes' reading time at the beginning of the examination:

- Parts (a) and (b): 15–20 minutes in total
- Parts (c), (d), (e) and (f): 40–45 minutes in total (10 minutes per part)
- Part (g): 45 minutes

■ Command terms

Command terms relate to the assessment objective that is being assessed. This means that each command term indicates the depth into which the candidate needs to go in their answers. Hence it is vital that you learn the meanings of the 33 different command terms in the *IB Economics Guide*:

- | | |
|------------------------------|----------------------|
| 1 Analyse (AO2) | 8 Contrast (AO3) |
| 2 Apply (AO2) | 9 Define (AO1) |
| 3 Calculate (AO4) | 10 Derive (AO4) |
| 4 Comment (AO2) | 11 Describe (AO1) |
| 5 Compare (AO3) | 12 Determine (AO4) |
| 6 Compare and contrast (AO3) | 13 Discuss (AO3) |
| 7 Construct (AO4) | 14 Distinguish (AO2) |

- | | |
|-------------------|-------------------------|
| 15 Draw (AO4) | 25 Plot (AO4) |
| 16 Evaluate (AO3) | 26 Recommend (AO3) |
| 17 Examine (AO3) | 27 Show (AO4) |
| 18 Explain (AO2) | 28 Show that (AO4) |
| 19 Identify (AO4) | 29 Sketch (AO4) |
| 20 Justify (AO3) | 30 Solve (AO4) |
| 21 Label (AO4) | 31 State (AO1) |
| 22 List (AO1) | 32 Suggest (AO2) |
| 23 Measure (AO4) | 33 To what extent (AO3) |
| 24 Outline (AO1) | |

For example, an examination question that uses the command term 'explain' requires you to 'give a detailed account including reasons or causes' (*IB Economics Guide*, page 75). This relates to the AO2 assessment objective. This is different from the command term 'evaluate', which requires a candidate to 'make an appraisal by weighing up the strengths and limitations' (*IB Economics Guide*, page 74). This relates to the AO3 assessment objectives.

Understanding the command terms will also help you improve your time management skills in the examinations. For example, the command term 'list' is an AO1 assessment that requires you to 'give a sequence of brief answers with no explanation'. So, it is acceptable to use bullet points for this particular command term, such as a question that asks candidates to 'List two factors that can shift the demand curve'.

Another example is the commonly used command term 'define', which requires you to 'give the precise meaning of a word, phrase, concept or physical quantity' (*IB Economics Guide*, page 74). This means that your definitions can be completed in one or two sentences – there is no need to ever exceed this for definitions in DP Economics.

A full range of command terms is available on pages 74–75 of the *IB Economics Guide* published by the IB.

TOP TIP!

Note that in general, the questions in parts (a) to (f) in Paper 2 will use command terms that relate to AO1, AO2 and AO4 command terms, whereas part (g) questions will use AO3 command terms.

■ Definitions and calculations

The case studies included in Paper 2 are significantly longer and contain a greater range of data to be used than in the previous syllabus (final examinations November 2021). Definition questions will appear in this paper, so be sure to revise the key terms listed in the Glossary of the textbook. While definitions do not need to be too detailed, there is sufficient time in the examination to write an accurate and full definition. A useful framework for doing this is the 3Es model. So, in addition to writing your definition, include one of the 3Es to clarify your answer and to gain that second mark:

- Example (short description or exemplar)
- Elaboration (brief explanation)
- Equation (formula, where appropriate).

TOP TIP!

Definitions should be answered in one or two sentences. Be precise and use one of the 3Es for clarification as appropriate.

The Paper 2 questions are highly likely to include some quantitative elements of the course, such as the calculation of price elasticity and/or a country's gross domestic product (GDP). Calculations need to be exact or expressed to two decimal places unless stated in the questions. Unless specified, you should also show your working out in full (although there is no need to include the formulae). Calculators are permitted in the Paper 2 examination – a basic four-function calculator will suffice.

TOP TIP!

SL students should be aware that some quantitative questions are highly likely to be included in the Paper 2 examination (see table below). Unlike the previous syllabus (final examinations November 2021), quantitative skills are now examined in the SL course.

'HL only' calculations are shown in red text in the table below.

Section	Calculations
2.3 Competitive market equilibrium	Consumer surplus and producer surplus from a diagram.
2.5 Elasticities of demand	PED, change in price, quantity demanded or total revenue from data provided. YED, change in income, quantity demanded from data provided.
2.6 Elasticity of supply	PES, change in price or quantity supplied from data provided.
2.7 Role of government in microeconomics	The effects on markets and stakeholders of: <ul style="list-style-type: none"> ● price ceilings (maximum prices) ● price floors (minimum prices) ● indirect taxes ● subsidies.
2.8 Market failure – externalities and common pool or common access resources	Welfare loss from a diagram.
2.11 Market failure – market power	Profit, MC, MR, AC and AR from data.
3.1 Measuring economic activity and illustrating its variations	Nominal GDP from sets of national income data, using the expenditure approach. Nominal GNI from data. Real GDP and real GNI, using a price deflator. Real GDP per capita and real GNI per capita.
3.3 Macroeconomic objectives	The rate of economic growth from a set of data. The unemployment rate from a set of data. The inflation rate from a set of data using quantities purchased as weights in the CPI. A weighted price index, using a set of data provided.
3.4 Economics of inequality and poverty	Given the indirect tax rate, the amount of indirect tax paid from a given level/ amount of expenditure. Total tax and average tax rates from a set of data.
3.5 Demand management (demand-side policies) – monetary policy	Real interest rates from given data.
3.6 Demand management – fiscal policy	Keynesian multiplier. The effect on GDP of a change in an injection in investment, government spending or exports, using the Keynesian multiplier.

■ Paper 2 diagrams

As with all IB assessments in the DP Economics course, the use and explanation of relevant economic diagrams are important. Diagrams account for a significant number of marks in the Paper 2 examination. The examination will usually (but not always) require a diagram and an explanation in parts (c) to (f) of the examination paper. You should adhere to the following rules and recommendations for the use of diagrams in your Paper 2 responses.

- Use a ruler for constructing diagrams. You should use a ruler for drawing the axes and for linear lines/curves in your diagrams.
- Titles are not required for the diagrams in Paper 2.
- In part (b), there is no need to explain your diagram unless asked for in the question.
- In parts (c) to (f), for 4-mark questions that require a diagram, you will need to construct a relevant and accurate diagram that is fully labelled (for 2 marks) plus write a precise and concise explanation of the diagram (for another 2 marks). The explanation need only be one or two paragraphs in length.
- Label axes as fully as possible and appropriately (for example, not just 'P' and 'Q', but as 'Price (\$)' and 'Quantity ('000 kg per week)'). However, standardized abbreviations on the axes are acceptable.
- Diagrams should be dynamic (not static), that is, they should show what has changed. For instance, you can use the labels P_1 , P_2 , Q_1 and Q_2 in the appropriate places on the axes of a demand and supply diagram to show the impact of a shift of the demand or supply curve.
- A diagram can be useful in part (g) to support your analysis, but this is not expected or required. For example, a diagram can be used if it helps to demonstrate the effects of the policy that you have recommended.

Diagrams specified in the syllabus, which may appear in Paper 2 and/or Paper 3, are outlined in the table below.

Note: 'HL only' diagrams are shown in red text.

Section	Diagrams
1.1 What is economics?	PPC illustrating choice and opportunity cost, unemployment of resources, actual growth and growth in production possibilities. PPC showing increasing versus constant opportunity cost. Circular flow of income model, with leakages and injections.
2.1 Demand	Downward sloping demand curve. Movements along the demand curve and shifts of the demand curve.
2.2 Supply	Upward sloping supply curve. Movements along and shifts of the supply curve.
2.3 Competitive market equilibrium	Market equilibrium. Changes in equilibrium/role of price mechanism. Consumer surplus and producer surplus (social/community surplus) – maximized at the competitive market equilibrium.
2.5 Elasticities of demand	Relatively elastic and inelastic demand curves. Constant PED – perfectly elastic, perfectly inelastic and unitary PED along a demand curve. PED along the straight-line demand curve. Changes in revenue as a result of price changes when demand is price elastic and price inelastic. Income elastic, income inelastic and inferior goods on an Engel curve.

Section	Diagrams
2.6 Elasticity of supply	Relatively elastic and inelastic supply curves. Constant PES – perfectly elastic, perfectly inelastic and unitary PES along a supply curve.
2.7 Role of government in microeconomics	The following measures and the possible effects on markets and stakeholders: <ul style="list-style-type: none"> ● price ceiling (maximum price) ● price floor (minimum price) ● indirect tax ● subsidy.
2.8 Market failure – externalities and common pool or common access resources	Allocative efficiency. Market failure due to the following: <ul style="list-style-type: none"> ● negative externalities of production ● negative externalities of consumption ● positive externalities of production ● positive externalities of consumption. The following government responses to dealing with externalities: <ul style="list-style-type: none"> ● indirect (Pigouvian) taxes ● carbon taxes showing effects on the market of a particular polluting industry ● subsidies ● legislation and regulation ● education.
2.11 Market failure – market power	Perfectly competitive firm as price taker where $P = D = AR = MR$. Perfectly competitive firm, showing abnormal profit, normal profit and losses. Equilibrium in perfectly competitive market with reference to allocative efficiency, when $P = MC$ or $MB = MC$, and maximum social/community surplus. Monopoly market power where $AR > MC$. Monopolist firm, showing abnormal profit, normal profit and losses. Price/quantity comparison of a monopoly firm with a perfect competitive market. Welfare loss under monopoly. Natural monopoly. Collusive oligopoly acting as a monopoly. Monopolistically competitive firm, showing abnormal profit, normal profit and losses. Monopolistic competition (with a more elastic demand curve compared to a monopoly).
2.12 The market's inability to achieve equity	The circular flow model to illustrate why the free market results in inequalities.
3.1 Measuring economic activity and illustrating its variations	Circular flow of income model showing the interactions between decision makers, leakages and injections. Business cycle showing short-term fluctuations and long-term growth trend (potential output).
3.2 Variations in economic activity – aggregate demand and aggregate supply	The aggregate demand (AD) curve. Shifts of the AD curve. The short run aggregate supply (SRAS) curve. Shifts of the SRAS curve. Alternative views of the AS curve. Shifts of the long run aggregate supply (LRAS) or Keynesian AS curve. Macroeconomic equilibrium in both the short run and long run.

Section	Diagrams
3.3 Macroeconomic objectives	<p>PPC model showing actual growth and growth in production possibilities.</p> <p>AD increases, showing increases in real output.</p> <p>LRAS increases, showing increases in full employment output.</p> <p>Minimum wage to show unemployment.</p> <p>A fall in the demand for labour for a particular market or geographical area.</p> <p>Deflationary gap to show cyclical unemployment.</p> <p>Demand-pull inflation.</p> <p>Cost-push inflation.</p> <p>Deflation.</p> <p>AD/AS curves to show trade-off between unemployment and inflation.</p> <p>Phillips curve showing the short run and long run relationship between inflation and unemployment.</p>
3.4 Economics of inequality and poverty	<p>Lorenz curve showing the distribution of income and possible changes in the distribution of income.</p> <p>Construction of a Lorenz curve from income quintile data.</p>
3.5 Demand management (demand-side policies) – monetary policy	<p>The determination of equilibrium interest rates (the demand and supply of money).</p> <p>AD/AS curves showing expansionary and contractionary monetary policy.</p>
3.6 Demand management – fiscal policy	<p>AD/AS curves showing expansionary and contractionary fiscal policy for both Keynesian and monetarist/new classical schools of thought.</p> <p>The crowding-out effect (constraints on fiscal policy).</p>
3.7 Supply-side policies	<p>AD/AS model and LRAS curve to show the effect of supply-side policies.</p> <p>Minimum wage (abolishing the minimum wage as a form of labour market market-based supply-side policy).</p>
4.1 Benefits of international trade	<p>Free trade illustrating exports when world price is above domestic price.</p> <p>Free trade illustrating imports when world price is below domestic price.</p> <p>Linear PPC showing differing opportunity costs and the potential gains from specialization and trade as a result of comparative advantage.</p>
4.2 Types of trade protection	<p>The effect of a tariff on price, production, consumption, expenditures, revenues and welfare.</p> <p>The effect of a quota on price, production, consumption, expenditures, revenues and welfare.</p> <p>The effect of a subsidy on price, production, consumption, expenditures, revenues and welfare.</p>
4.5 Exchange rates	<p>The exchange rate determination and changes in equilibrium in a floating exchange rate system.</p> <p>AD/AS curves to show potential consequences of changes in the exchange rate on the economy.</p> <p>How a fixed exchange rate is maintained.</p> <p>The exchange rate determination and changes in equilibrium in a managed exchange rate system.</p>
4.6 Balance of payments	<p>The relationship between the current account balance and the exchange rate.</p> <p>J-curve with reference to the Marshall-Lerner condition.</p>
4.9 Barriers to economic growth and/or economic development	Poverty cycle showing any linked combination of factors that perpetuate poverty.
4.10 Economic growth and/or economic development strategies	Students are expected to draw from the diagrams used in the other sections in relation to strategies to promote economic growth and/or economic development.

■ Assessment objectives, markbands and assessment criteria

The Paper 2 examination requires you to demonstrate competency of the following assessment objectives (AOs):

- AO1 – Knowledge and understanding (of relevant economics theories and concepts).
- AO2 – Application and analysis (of theories and concepts relevant to the question).
- AO3 – Synthesis and analysis (of the theories, concepts and arguments put forward when answering the question).
- AO4 – Use and application of appropriate skills.

Knowledge of economics is not enough to guarantee success in the Paper 2 examination. You are not only being assessed on your knowledge of the subject, but on a range of skills and how well you demonstrate these in the examination. For example, you must demonstrate appropriate references to the text/data in the Paper 2 examination, and particularly when answering part (g). To score top marks, your answer in part (g) must incorporate references to the stimulus material in the case study in order to demonstrate the skills of analysis and to provide a balanced evaluation.

When marking your answers, IB examiners will determine your score based on published assessment criteria (below). They will use a 'best-fit' approach, which allows them to place you in a markband that best describes your work.

■ Markbands for Paper 2 part (g) 15-mark essay question

Marks 0–15	Level descriptor
0	<ul style="list-style-type: none"> ● The work does not reach a standard described by the descriptors below.
1–3	<ul style="list-style-type: none"> ● The response indicates little understanding of the specific demands of the question. ● Economic theory is stated but it is not relevant. ● Economic terms are stated but they are not relevant. ● The response contains no evidence of synthesis or evaluation.
7–9	<ul style="list-style-type: none"> ● The response indicates understanding of the specific demands of the question, but these demands are only partially addressed. ● Relevant economic theory is partly explained. ● Some relevant economic terms are used appropriately. ● Where appropriate, relevant diagram(s) are included. ● The response contains evidence of appropriate synthesis or evaluation but lacks balance. ● The response includes some relevant information from the text/data.
10–12	<ul style="list-style-type: none"> ● The specific demands of the question are understood and addressed. ● Relevant economic theory is explained. ● Relevant economic terms are used appropriately. ● Where appropriate, relevant diagram(s) are included and explained. ● The response contains evidence of appropriate synthesis or evaluation that is mostly balanced. ● The use of information from the text/data is generally appropriate, relevant and applied correctly.
13–15	<ul style="list-style-type: none"> ● The specific demands of the question are understood and addressed. ● Relevant economic theory is fully explained. ● Relevant economic terms are used appropriately throughout the response. ● Where appropriate, relevant diagram(s) are included and fully explained. ● The response contains evidence of effective and balanced synthesis or evaluation. ● The use of information from the text/data is appropriate, relevant, and is used to formulate a reasoned argument supported by analysis/evaluation.

As part (g) is an essay, it is recommended that you spend about 45 minutes answering the question. Therefore, construct your answer as an essay that includes the following components:

- 1 Introduction – define relevant key terms from the question.
- 2 Body – use fit-for-purpose paragraphs (PEEL framework), refer explicitly to the text and the data, and apply relevant economic theories/concepts. A diagram can be used to support the analysis, but it is not required.*
- 3 Conclusion – the evaluation should be based on both the texts/data and the relevant economic analysis. The question must be answered and substantiated (fully justified).

*Note that if appropriate, the answer in part (g) can refer to a diagram drawn in answers to parts (b)–(f).

TOP TIP!

Use the **PEEL** framework to ensure you write fit-for-purpose paragraphs in your essays. This can be used for all three papers – Paper 1 parts (a) and (b), Paper 2 part (g), and Paper 3 part (b).

- **Point** – For each paragraph, stick to just one point to explain, analyse or examine.
- **Explain** – Provide a succinct explanation of your point, in relation to the question.
- **Examples** – Use relevant examples to clarify your explanations and arguments.
- **Link** – Make sure the paragraph directly links to/answers the essay question.

TOP TIP!

References to the text/data should be made (where appropriate) and particularly when answering part (g). Part (g) must incorporate references to the text/data, to undertake analysis and to provide a balanced evaluation.

To score 15 marks in part (g) of Paper 2, there must be evidence of the following:

- A clear understanding of the specific demands of the question.
- Application of relevant economic terms and theory throughout the response.
- Relevant diagram(s) – where appropriate – that are fully explained.
- Effective and balanced synthesis/evaluation.
- The effective use of relevant information from the text/data to formulate reasoned arguments that are also supported by economic analysis or evaluation.

TOP TIP!

A useful framework to use for demonstrating your skills of evaluation in the Paper 2 essay (the final question, worth 15 marks) is the **SLAP** principle. This requires you to consider, as part of your evaluation, any combination of the following:

- **Stakeholder perspectives** – who are the winners and losers of the economic policy changes?
- **Long-term versus short-term implications.**
- **Assumptions** – what is it that we do *not* know (given the limited amount of information provided in the stimulus material)? What would happen if we removed the *ceteris paribus* assumption in the analysis?
- **Priorities** – what is/are the most important of the argument(s) presented in the essay, and why?

Summary

- All students take the Paper 2 examination.
- Paper 2 is a data response paper along with a final extended response question (15-mark essay).
- Students answer **one** question from a choice of two. Each question is subdivided into seven parts (a–g).
- The total number of marks is 40.
- The duration of the examination is 1 hour 45 minutes.
- Some quantitative questions are likely to be included.
- Definitions and diagrams are examined.
- For calculations, answers should be expressed to two decimal places unless otherwise stated in the question.
- The examination questions cover the whole syllabus, with questions specific to respective SL and HL content in the syllabus.
- As this is a data response paper, you must make appropriate use of the text/data, especially in part (g), in order to demonstrate effective analysis and to provide a balanced evaluation.
- As part (g) is an essay, your response to it must have a body, introduction and conclusion.
- The weighting of Paper 2 is 40 per cent for SL and 30 per cent for HL.

Answering Paper 3 questions (HL only)

■ Paper 3 at a glance

The Paper 3 examination is an externally examined component that is taken by all Higher Level DP Economics students. The examination paper is worth 30 per cent of the course.

Note that the Paper 3 assessment requires you to use both quantitative *and* qualitative techniques to analyse and evaluate economic relationships in order to provide informed policy advice. This is why the Paper 3 examination is often referred to as ‘the policy paper’.

■ The examination paper

The Paper 3 examination will present each candidate with **two** compulsory questions. You must answer both questions within 1 hour and 45 minutes. Each question is worth a total of 30 marks and has two parts, named *Part (a)* and *Part (b)*. Part (a) typically includes eight separate questions and Part (b) includes one 10-mark essay question.

The questions presented to each candidate can be taken from any of the four sections of the syllabus, namely:

- 1 Introduction to economics
- 2 Microeconomics
- 3 Macroeconomics
- 4 The global economy.

The questions can be based on, but are not limited to, the HL content indicated in the syllabus.

■ Assessment objectives, markbands and assessment criteria

The Paper 3 examination will require you to demonstrate competency of the following assessment objectives (AOs):

- AO1 – Knowledge and understanding (of relevant economic theories and concepts).
- AO2 – Application and analysis (of theories and concepts relevant to the question).
- AO3 – Synthesis and analysis (of the theories, concepts and arguments put forward when answering the question).
- AO4 – Use and application of appropriate skills (such as drawing relevant economic diagrams to support economic analysis and evaluation).

When assessing your answers, examiners will use a mark scheme that will include model calculations, rubric requirements and the assessment criteria for Paper 3. When using the rubric requirements, examiners will use a ‘best-fit’ approach based on the level descriptors, which allows them to place you in a markband that best describes your work.

■ Part (a) – Performing calculations

Several questions presented to you in Part (a) (i to viii) will require calculations to be performed. It is particularly important that you remember some key pieces of advice:

- **Two decimal places** – It is essential that you give all of your answers to two decimal places (unless otherwise stated in the examination question). Students who fail to do this and present rounding errors instead will be penalized.
- **Units of measurement** – You must remember to give all final answers in the correct units. Units can include, for example, currencies, weights (such as tonnes or kg), or time periods (such as years or months) and percentages. Failure to do so can result in candidates losing valuable marks.
- **Penalties** – The mark schemes for Paper 3 state that you can be punished only once per question for each mistake. However, this could mean deductions of 3 marks per question due to rounding errors, the failure to show answers to two decimal places, and not expressing answers in the correct units of measurement. These penalties are treated differently. This could therefore result in a total of 6 marks (10 per cent of the paper) being deducted from a candidate’s score, across the two questions.
- **The ‘own figure rule’ (OFR)** – When a candidate makes an error in a calculation that is then carried over to a later part of the question, the examiner may award full marks for the latter parts of the question based on the ‘own figure rule’ (or ‘error carried forward’ rule). Therefore, it is essential that you show clear and appropriate working, as examiners will need to see where your mistake was made for them to apply the OFR. Do not expect any examiner to take significant time to go back through your answers in order to try to identify an error that you have not demonstrated clearly.

■ Part (a) rubric requirements

In addition to the calculation questions outlined above, Part (a) of Paper 3 will ask you to *explain*, *comment*, *outline* and *define*. Hence, only assessment objectives AO1, AO2 and AO4 are assessed in this part of the paper.

In this case, answers will be based on their accuracy against a rubric. Note that if a question requires an example (such as in questions that start with ‘Using an example, explain ...’), an answer will be capped at 3 marks (out of 4) if it does not include a clear and relevant example.

■ Part (b) responses

In each of the two questions in Paper 3, you will be given a 10-mark response in Part (b). These responses require you to make a policy recommendation based on the stimulus materials given in the exam paper. This means that you will need to present an advisable course of action with appropriate use of the text and/or data in relation to the given situation, problem or issue.

There are several ways in which you can approach these 10-mark questions. Nevertheless, it is important that you follow the advice of your teacher(s).

A closer look at the assessment criteria indicates a sequence in which the assessment objectives are assessed. This is based loosely around an educational theory called *Bloom's Taxonomy*, which aims to rank learning/assessment objectives according to levels of complexity.

Generally, the assessment criteria and rubrics (as shown below) look for the following:

Criteria	Notes
The response identifies and fully explains an appropriate policy.	This rubric requirement means that you have selected a policy that is relevant to the given situation, problem or issue. It also means that you have fully explained the policy in the context of this issue/problem.
The response uses relevant economic theory effectively to support the recommendation.	This means you have demonstrated correct selectivity and explained the appropriate theory for your chosen recommendation, written in the context of the case study.
Relevant economic terms are used appropriately throughout the response.	This means that you have used the most appropriate terms correctly, providing definitions where required.
The use of information from the text/data is appropriate, relevant and supports the analysis/evaluation effectively.	This means you have used the text/data in the case study to support your analysis. Hence, you can quote the data/text clearly where possible and appropriate. This could be done by weaving the quotes/data into your analysis.
The response contains evidence of effective and balanced synthesis or evaluation.	This means you have made substantiated judgements based on the evidence presented. You have also demonstrated the limitations of your arguments and the theory used.

■ The level descriptors for the 10-mark essay in Part (b)

Marks 0–10	Level descriptor
0	<ul style="list-style-type: none"> ● The work does not reach a standard described by the descriptors below.
1–2	<ul style="list-style-type: none"> ● The response identifies a policy. ● The response uses no economic theory to support the recommendation. ● Economic terms are stated but are not relevant. ● The response contains no use of text/data to support the recommendation. ● The response contains no evidence of synthesis or evaluation.
3–4	<ul style="list-style-type: none"> ● The response identifies an appropriate policy. ● The response uses limited economic theory to support the recommendation in a superficial manner. ● Some relevant economic terms are included. ● The response contains no use of relevant text/data to support the recommendation. ● The response contains superficial evidence of synthesis or evaluation.

Marks 0–10	Level descriptor
5–6	<ul style="list-style-type: none"> ● The response identifies and explains an appropriate policy. ● The response uses relevant economic theory to partially support the recommendation. ● Some relevant economic terms are used appropriately. ● The response includes some relevant information from the text/data to support the recommendation. ● The response contains evidence of appropriate synthesis or evaluation but lacks balance.
7–8	<ul style="list-style-type: none"> ● The response identifies and fully explains an appropriate policy. ● The response uses relevant economic theory to support the recommendation. ● Relevant economic terms are used mostly appropriately. ● The use of information from the text/data is generally appropriate, relevant and applied correctly to support the recommendation. ● The response contains evidence of appropriate synthesis or evaluation that is mostly balanced.
9–10	<ul style="list-style-type: none"> ● The response identifies and fully explains an appropriate policy. ● The response uses relevant economic theory effectively to support the recommendation. ● Relevant economic terms are used appropriately throughout the response. ● The use of information from the text/data is appropriate, relevant and supports the analysis/evaluation effectively. ● The response contains evidence of effective and balanced synthesis or evaluation.

Source: IB Economics Guide, pages 65–66

Summary

- The Paper 3 exam is for HL students only, with mostly quantitative questions but includes policy questions that are qualitative in nature.
- It accounts for 30 per cent of the overall assessment in the course.
- Students answer the two compulsory questions in 1 hour 45 minutes. The total number of marks is 60.
- The questions in Paper 3 are subdivided into parts (a) and (b). Part (a) has subparts, Part (b) is a 10-mark essay.
- Answers to calculations should be given exactly or be correct to two decimal places.
- Diagrams must be accurately drawn, fully labelled and explained in the context of the text/data.
- The examination paper culminates in an essay question worth 10 marks, requiring you to make policy recommendations using economic analysis and evaluation.

Internal assessment (IA)

The internal assessment (IA) is an integral part of the IB DP Economics course and is compulsory for both SL and HL students. In terms of IB pedagogy, the internal assessment allows students to apply the concepts (WISE ChoICES) using content in the syllabus, and written in the contexts of real-world issues and real-world examples. The IA also enables you to engage in inquiry and to develop your ATL skills of critical thinking, self-management and research. Completing the portfolio of IAs enables you to demonstrate your economic insights into the implications of the issue featured in the news media, that is, it provides evidence of your ability to discuss current events from the perspective of an economist.

The IA contributes 30 per cent to the final assessment in the SL course and 20 per cent to the final assessment in the HL course. *Note: this is a significant change for SL students as the IA accounted for 20 per cent of the previous SL course (final examinations November 2021).*

The internal assessment enables you to demonstrate the application of your skills and knowledge and to pursue your personal interests in the study of economics without the time limitations and other constraints that are associated with the external examinations. The IA enables you to demonstrate your economics knowledge and understanding in relation to real-world issues and situations. As with all internal assessments from the IB, the economics IA is internally assessed by a teacher at your school and externally moderated by the IB at the end of the two-year course.

TOP TIP!

In schools where there is more than one teacher responsible for the economics IA, the work must be internally moderated by all teachers involved, before the final marks are submitted to the IB for external moderation.

■ Requirements of the economics IA (SL and HL)

IB students are expected to produce a portfolio of **three** written commentaries based on the different units of the syllabus, namely Microeconomics, Macroeconomics and The global economy. This means the IA does *not* include the introductory Unit 1 of the syllabus (Introduction to economics). Very importantly, the three written commentaries must be based on published extracts from the (mainstream) news media.

Each of the three commentaries must also use a different key concept (out of nine prescribed WISE ChoICES concepts: (economic) **W**ell-being, **I**nterdependence, **S**carcity, **E**fficiency, **C**hoice, **I**ntervention, **C**hange, **E**quity and **S**ustainability (refer to pages 5–7 in the textbook). These concepts provide a lens through which to analyse the published extracts from the news media.



■ **Figure 40.1** The WISE ChoICES concepts

The maximum word limit for each commentary is **800 words**. Each commentary is marked out of **14 marks**, based on the five assessment criteria (as stipulated on pages 71–73 in the official *IB Economics Guide*). There are three additional marks for the rubric requirements of the IA portfolio (Criterion F). Hence, the maximum number of marks that a student can achieve is **45** for all three commentaries (that is, the entire portfolio).

For each commentary, you will need to identify a relevant extract from a reliable news media source, such as a reputable newspaper, news magazine, journal or online newspaper. You will need to explain the links between the contents of the news article through the lens of a key concept (any one of the nine WISE ChoICES concepts) *and* economic theory taken from a specific unit of the IB Economics syllabus on which the article is based (Unit 2: Microeconomics, Unit 3: Macroeconomics, or Unit 4: The global economy).

Importantly, the written commentary should provide evidence of your ability to discuss a current real-world example or real-world issue from the point of view of an economist, rather than a response that is purely theoretical.

■ The key concepts

Key concepts are explicitly assessed in the IA and are worth **3 marks** per commentary (under Criterion D). This means a total of 9 marks out of 45 (or 20 per cent) of the IA assessment are allocated to recognizing, understanding and linking key concepts to the chosen news media articles.

Given there are nine key concepts and you need to choose only three of these in total, there is absolutely no reason to use a chosen concept more than once. Students are likely to lose up to 3 marks under Criterion D if they use the same key concept in two different commentaries, and up to 6 marks if the same key concept is used in all three commentaries.

It has been commented that students should use about 50 words for the chosen key concept. This is too limiting and prescriptive as an approach. Instead, the key concept should be apparent throughout your written commentary and provide an opportunity to synthesize the points presented. Hence, aim to use the chosen key concept throughout your commentary:

- Introduce the key concept in the first paragraph; for example, 'the key concept of this commentary is ...' or 'the conceptual focus of this commentary is ...'.
- Where appropriate, relate the concept to your diagram(s).
- Refer to your key concept again in the conclusion/judgement as this can help with your critical- and evaluative-thinking skills.

■ How the marks are awarded in the internal assessment

Each of the three commentaries is marked using the rubrics below. The maximum number of marks for each commentary is **14 marks**.

Criterion	Component	Maximum marks	Requirements
A	Diagrams	3	Appropriate, accurate and fully labelled diagrams are included, with full explanations.
B	Terminology	2	Relevant terminology is used correctly, throughout the commentary.
C	Application and analysis	3	Appropriate economic theories are used and applied in the context of the news media article.
D	Key concept	3	One of the prescribed WISE Choices concepts is used and its relevance to the article is fully explained.
E	Evaluation	3	Substantiated judgements are made and supported by effective and balanced reasoning.
		14	

There is an additional assessment criterion for the whole portfolio (the three commentaries in their entirety).

Criterion	Component	Maximum marks	Requirements
F	Rubric requirements	3	<ul style="list-style-type: none"> i Articles – Each article is based on a different unit of the syllabus. ii Sources – Each article is from a different source. iii Contemporary articles – Each article relates to a current event and was published no earlier than a year before the writing of the commentary.

Hence, the total number of marks for the internal assessment is $(14 \times 3) + 3 = 45$ marks.

So, what will happen if a student (for whatever reason) does not submit three written commentaries as part of the portfolio? In such (rare) cases, the IB will mark this as zero out of 14 marks for each missing commentary as well as deducting 1 mark from Criterion F for each missing commentary.

■ Structuring the IA

There is no specific format or structure required for the IB Economics IA, although the rubric requirements of Criterion F stipulate particular requirements. The structure below is a suggested format that can be used by students.

Item	What to include	Word count limit
Article	The article should be included in its entirety and original format; a URL link to the article is not sufficient.	Not included in the 800 words
Commentary cover page [#]	<ul style="list-style-type: none"> the commentary number the title of the article the news media source of the article (including date of access to the website if this is from the internet) the date the article was published the date the commentary was written the word count of the written commentary the unit of the syllabus to which the article relates the key concept being used. 	Not included in the 800 words
Introduction	You are discouraged from writing a lengthy introduction. You can start by explaining or using the most relevant key economic terms and the key concept for the commentary. Also outline the underlying problem or issue mentioned in the article.	100–150 words*
Diagram(s)	At least one fully labelled diagram is expected to explain the issue in the article and to offer a framework for economic analysis. Diagrams can also be used to demonstrate solutions to the issue or problem highlighted in the published article.	Headings on diagrams of 10 words or fewer plus diagram labels of 5 words or fewer are not included in the word count limit
Explanation of the diagram(s)	A thorough explanation of the diagram(s) is (are) required, applying relevant information from the published article. As a general rule of thumb, everything included in your diagram needs to be explained.	150–200 words*
Analysis	You should develop the explanation of the diagram(s) and economic theory(ies) used in the written commentary. This should be written in the context of the published article <i>and</i> the key WISE CHOICES concept chosen by the student.	250 words*
Evaluation	You are expected to evaluate the application of the theory(ies) or suggested solution(s) to the problem by considering some of the unintended effects of the policy as well as prioritizing your arguments. For example, you can do this by discussing the short run versus long run implications and/or by explaining the economic impacts on different stakeholder groups. Make sure you include a succinct (concise) conclusion.	250 words*

* These are suggested word lengths only, and not a formal requirement by the IB.

[#] Many schools maintain the practice of including a front cover sheet for each commentary to ensure students comply with the rubric requirements of the IA.

TOP TIP!

All internal assessment work must be kept anonymized. Hence, you must not include your name or candidate number in any part of your IA, including the front cover page. There is no formal requirement, but it is permissible to include your personal code (for example, ghm007) if you wish, as this does not identify your school or your candidacy.

■ A word or two about the word count limit

The IB states that the following are not included in the word count:

- contents page
- diagrams
- labels on diagrams of no more than five words
- headings on diagrams of no more than ten words (these must be headings only and not 'explain' anything)
- tables of statistical data (if used)
- equations, formulae and calculations (if used)
- citations (which, if used, must be in the body of the commentary)
- references (which, if used, must be in the footnotes/endnotes).

Although the IB allows footnotes/endnotes to be used for referencing purposes only, this is generally discouraged. You do not receive any additional credit for citing or referencing material beyond the article. Also note that definitions of economic terms, if used, must be in the body of the commentary and are included in the word count – even if these are placed as a footnote or endnote. The same rule applies to quotations, if used.

■ Selection of appropriate articles for the IA

You should select news media articles from reliable and reputable sources from the mass media or mainstream media sources. The IB states the news articles can be from a newspaper, a journal or the internet, but they must not be from television or radio broadcasts. Well-known news sources (such as BBC News, CNN or *The Guardian*) should be used. As a general rule, do not use any news source that neither you nor your teacher has not heard of. However, you should also be cautious about sources that have a significant focus on economics (such as *The Economist*, *Forbes*, the *Financial Times* and *The Wall Street Journal*) because these kinds of sources generally already contain economic analyses, leaving you with minimal scope to explore new ideas and demonstrate your own economic knowledge. This undoubtedly means you would be limiting your potential to gain a high score in the internal assessment.

For each written commentary, you should identify the economics **content** from the IB Economics syllabus (from Units 2, 3 or 4). You can try searching for news articles by typing in key words in an internet search engine, such as 'price ceiling', 'tariffs', 'trade war' or 'unemployment'. Some search engines, such as Google, have the option to select just news articles by clicking on the 'News' tab.

Short articles, outlining economic issues, which have scope for economic analysis and evaluation are recommended for the IB Economics IA. Articles where analysis and evaluation are already provided are strongly discouraged and should be avoided. For longer articles, which again are not generally recommended, you are expected to highlight the relevant sections that are important for your analysis and evaluation.

The chosen published news media article should have relevant information and/or data to be used for the analysis and evaluation. It should be contemporary and must not have been published more than **12 months** before you write the commentary.

It is preferable that the news article is written in the same language as the commentary (which usually means it is in English, French or Spanish). If this is not possible, and the IB permits articles written in any language, you must provide an accurate translation of the whole news media article and include the original article in the portfolio.

TOP TIP!

For most students, as there are plenty of suitable articles widely available in the working language of the school, selecting articles from any other language will usually lead to extra and unnecessary work for the student.

TOP TIP!

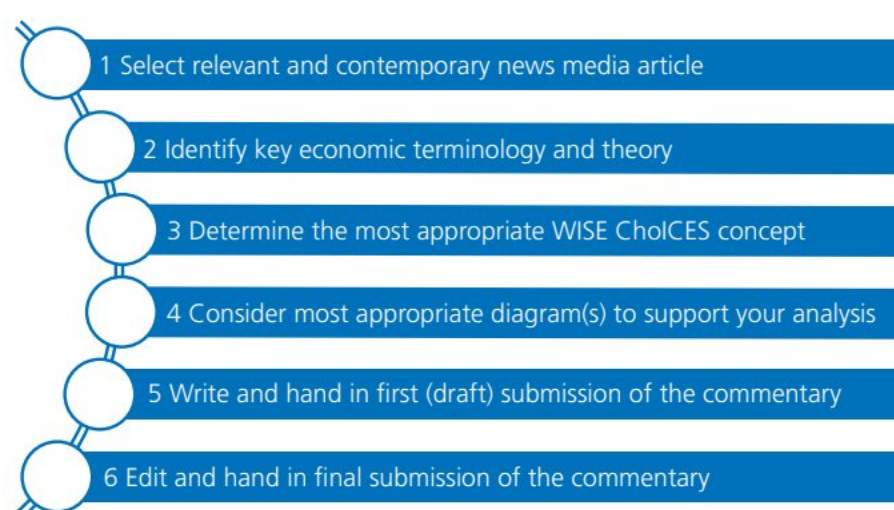
The most suitable topics for the IA tend to be those that can be clearly linked to economic theory and have opportunities for you to demonstrate critical and reflective evaluation. For example, taxes and/or subsidies are ideal topics for Microeconomics as the discussions can be supported by clear and appropriate diagrams in the syllabus and are also closely related to economic theory (externalities, market failure and price elasticity of demand).

■ Selection of appropriate topics for the IA

The table below shows some examples of relevant topics from the different units of the IB Economics syllabus that could be explored for the internal assessment. The list is by no means exhaustive.

Unit	Sub-topics	Specific topic ideas (examples)
2 Microeconomics	Market failure	Vaping / tobacco / fuel / 'sin' taxes (on junk food products or sugary drinks).
	Subsidies	Electric cars / agricultural output / wage subsidies / face masks (coronavirus pandemic).
	Price floors and price ceilings	Alcohol / wage price floor / rent control / petrol / energy price ceiling.
	Taxes	Cigarette tax / alcohol tax / air pollution / water pollution / carbon taxes.
3 Macroeconomics	Fiscal policy	Income tax cuts / raising government spending / fiscal stimulus / expansionary fiscal policies.
	Inflation	Consumer confidence / business confidence / costs of deflation / costs of disinflation / costs of inflation on different stakeholders.
	Monetary policy	Interest rates / expansionary monetary policy / zero interest rate policy (ZIRP).
	Supply-side policies	Government spending on schools / infrastructure spending / expansionary demand-side policies.
	Unemployment	Minimum wage / cyclical unemployment / costs of unemployment on different stakeholder groups / minimum wage rates / labour union powers / trade liberalization / unemployment benefits / income tax cuts.
4 The global economy	Exchange rates	Euro / US dollar, the Chinese yuan and US dollar peg / crude oil prices / trade account deficits / current account deficits.
	Foreign direct investment (FDI)	The role of multinational companies and FDI as a growth and development strategy.
	Sustainable development	The role of micro credit schemes / aid / debt relief.
	Trade protectionist measures	Import tariffs / trade wars / trade embargoes / retaliatory tariffs / import quotas / dumping / subsidised agricultural output / export subsidies.

■ Steps in writing the IB Economics IA commentary



■ **Figure 40.2** Vital steps in the IB Economics internal assessment

The first step, and critical one, is the selection of an appropriate news article for the IA (see above section for advice on this). You should check the suitability of your chosen article with your teacher, but it is your responsibility (not the teacher's) to select an appropriate article for the IA.

Next, you should identify key economic terms appropriate to the news article plus the most relevant economic theory or theories that can be used to explain the issue or event outlined in the published news article.

The third step is to consider the most relevant of the nine WISE ChoICES concepts that can be used as the lens by which to analyse the issue or problem highlighted in the published news article. You need to make sure you use only one of the nine key concepts (that best fits with the economic issue or problem in the article).

The fourth step is to consider the most appropriate diagram(s) that can be used to support your analysis. In all cases, diagrams must be relevant, accurate and correctly labelled, with a full explanation written in the context of the published article. You must draw or construct your own original diagrams.

You should restart this process if a suitable article cannot be found or if you cannot determine a suitable diagram that can be used to construct your written commentary.

You are encouraged to organize your thoughts by putting all the ideas on a piece of paper or using any online organizational tool. Some teachers also use IA planning frameworks, which can be useful in supporting their students to plan the written commentaries.

Once the article, key terminology, economic theory and key concept are all determined and finalized – which you are encouraged to check with your teacher – you can start the drafting (writing) process. You will need to explain the connections between economic terms and theories linked to the published news article. You are encouraged to evaluate the theory and the solution(s) offered to the real-world issue or problem by exploring the impact of these policies, stated or inferred in the article, by explaining the economic effects on various stakeholder groups in the short and long run. Evaluation of these policies also requires you to suggest alternative microeconomic or macroeconomic policies and to explore the possible advantages and disadvantages of the suggested policies.

TOP TIP!

Aim to find an article published within the last year (from the time of writing) using a reputable news media source that refers to the imposition of a specific economic policy without the author going into excessive amounts of economic analysis. Explain the links between the article, your chosen key concept, and economic theory taken from the relevant unit of the syllabus on which the article is based. You will then be on track to submitting an excellent written commentary.

■ Understanding the assessment criteria (SL and HL)

Criterion	Commentary section	Assessment objective(s)	Marks available	Description
A	Diagrams	AO2 and AO4	3	This criterion assesses the extent to which you are able to <i>construct</i> and <i>explain</i> relevant, accurate and correctly labelled diagrams.
B	Terminology	AO1	2	This criterion assesses the extent to which you use appropriate economic terminology relevant to the article and throughout the commentary.
C	Application and analysis	AO2	3	This criterion assesses the extent to which you recognize, understand, apply and analyse economic theory in the context of the published article and throughout the commentary.
D	Key concept	AO2	3	This criterion assesses the extent to which you recognize, understand and fully explain the link of the chosen key concept to the news article.
E	Evaluation	AO3	3	This criterion assesses the extent to which your judgements are supported by effective, balanced and reasoned arguments.
F	Rubric requirement	AO4	3	<p>This criterion assesses the extent to which you meet the three rubric requirements for the complete portfolio of the IA:</p> <ol style="list-style-type: none"> 1 Each article is based on a different unit of the syllabus (i.e. Unit 2, 3 and 4). 2 Each article is taken from a different and appropriate news media source. 3 Each article was published within the last year prior to you writing the commentary.

■ Student checklist for submitting the IA

Prior to handing in your draft and final submission of each commentary, you may find the following checklist useful. Have you included the following?

Full title of the article	
The source of the news media article	
A copy of the article in its entirety and placed before the commentary	
The hyperlink and source of the article (plus the date of access to the website if the article is from the internet)	
The date that the article was published	
Highlighted section(s) of the article upon which your written commentary is based	
The unit of the syllabus to which the article relates (Unit 2, 3 or 4)	
The key concept used (only use one concept per commentary)	
The word count of the commentary (no more than 800 words)	

■ Final top tips

- You can develop ideas for the IA by doing research on the internet, such as searching for news items based on some of the key words and/or theories learned in recent lessons. This helps to develop your research skills and level of engagement in IB Economics.
- You should refrain from paraphrasing the article. Instead, explain these points in your own words to demonstrate your understanding and comprehension of the issue or problem mentioned in the published news article.
- Both SL and HL students should dedicate approximately 20 hours of in-school time for completing the IA. This includes lessons/sessions with the classroom teacher for support, and time to complete the administrative aspects of signing off the completed portfolio of commentaries. The IA portfolio will also need to be electronically submitted (uploaded) to the IB.
- In order to achieve the highest mark for Criterion A, you must use dynamic diagrams, that is, the diagrams should be used to indicate shifts/movements of relevant curves. You should use more than one diagram if there is scope to do so within the context of the article.
- Economic terminology most appropriate to the article should be used throughout the commentary. Do not use long sentences to define all the economics terms that might be relevant, but instead save these words for your analysis and evaluation. Definitions are not a formal requirement of the IB Economics IA, but the correct use of terminology is. Criterion B assesses the extent to which you demonstrate use of appropriate economic terminology throughout your written commentary.
- Submission of the commentary must be the student's individual and original work. A commentary must not be prepared collaboratively as this is deemed to be academic malpractice.
- Students will risk losing 3 marks for Criterion D if they use the same key concept in two commentaries and up to 6 marks if the same key concept is used in all three commentaries. There is no need to take this risk, given that there are *nine* key concepts and students need to complete only three commentaries.
- There is often confusion about the use of footnotes/endnotes. These should be avoided. The only instance where these can be used is for citation and referencing (although this is not a formal requirement for the IA). Definitions of economic terms and quotations, if used, must be in the body of the commentary. Definitions, explanations or analysis in footnotes or endnotes will be included in the official word count.
- IB moderators are instructed not to read beyond 800 words for each commentary. So, ensure that each of your commentaries does not exceed 800 words. The IB is extremely strict about word count limits as part of its overall academic integrity policy.
- Diagrams should be original and individually drawn. You can use hand-drawn diagrams and have these scanned into your commentary or you can construct these using computer software programs. Diagrams should be appropriate, sufficiently large, correctly labelled, clear and precise. They must also be fully explained – essentially, this means that anything and everything in a diagram should be explained.

TOP TIP!

Construct your own diagrams for the IA. If you simply copy a generic diagram from a textbook or the internet, you will receive zero marks for Criterion A because such an approach shows you are unable to *construct* and *explain* relevant, accurate and correctly labelled diagrams in the context of the article.

- A useful acronym that you can use for demonstrating evaluation in the IA is **CLASPS**. A clasp is something that holds things together, so is apt in helping you to evaluate the discussion points in the commentary. However, you do not need to include all of these components to demonstrate critical and reflective thinking:
 - Conclusion – this should include a synthesis of the points discussed, with a decision made as far as possible.
 - Long run versus short run implications of the points discussed and the policy(ies) recommended.
 - Assumptions – what happens if the *ceteris paribus* assumption is removed? What does the news article not reveal that might be critical to the real-world issue or problem?
 - Stakeholder perspectives, including the winners and losers of certain issues or policy decisions.
 - Priorities – which of the points presented in the IA is of most significance/importance/relevance and why?
 - Strengths and shortcomings – there should be consideration of the advantages and limitations of the policy recommendations made.



■ **Figure 40.3** Clasps are used to hold things together – a useful framework for evaluation in IB Economics

- An alternative approach to demonstrating skills of evaluation is to use the **SLAP principle**:
 - Stakeholder perspectives – a consideration of the various stakeholder groups that gain or lose from different issues or economic policy decisions.
 - Long run versus short run implications of the points discussed and the policy(ies) recommended.

- Assumptions – what happens if the *ceteris paribus* assumption is removed? What does the news article not reveal that might be critical to the real-world issue or problem?
- Priorities – which of the points presented in the IA is of most significance/importance/relevance and why?
- Overall, stick to the rules of the IA – the commentary should include application of relevant key terms, explanations of diagram(s), analysis of the economic issue or problem and evaluation of the solution offered.

All the best for the completion of your internal assessments!

Extended essay (EE)

As an IB Diploma Programme student, you are required to write an independent, self-directed 4,000-word essay on a subject of your own choice. An extended essay (EE) in economics allows you to delve deeper into the discipline, by providing you with the opportunity to undertake in-depth research in an area of personal interest that is worthy of study and has academic rigour.

Engaging with and completing the EE allows you to:

- develop your research skills
- apply economic theory to a real-world situation or real-world issue
- analyse and evaluate the outcomes of your research.

The EE requires you to commit approximately **40 hours** of work, with the support of an EE supervisor at your school. The outcome of the research should be a coherent and structured analytical essay that effectively addresses the particular research question.

To succeed in the IB Economics EE, you must be prepared to do research to extend your knowledge of the theory and gather meaningful and reliable data, which you can analyse in the context of the theory and the focus of the research question. Essentially, this means reading academic literature beyond the parameters of the DP Economics syllabus.

■ Selection of the topic

In selecting a suitable topic for your EE in IB Economics, you should identify the area of the syllabus content that is of most interest to you. The essay should be based on core principles of economics as a basis for researching the topic that most appeals to you. You must conduct **secondary research** but can include relevant primary research, depending on the area of economic content chosen. You should apply economic theories, tools and techniques covered in the IB Economics curriculum to the chosen topic.

TOP TIP!

For a research question to be clear and focused, make sure you avoid double-barrelled questions, that is, do not use a research question that is made up of more than one question.

While choosing the topic of the economics EE, you must also ensure that:

- the EE is not historical – the chosen topic and research question must be related to economic information that is no more than **five** years old
- the research question can be answered using economic theories and concepts
- the chosen topic provides opportunities for critical analysis of the information and data collected
- the scope of the essay has a clear focus, while providing opportunities for you to demonstrate economic understanding and critical analysis and evaluation
- the research question does not lean heavily towards business management or psychology (or any other academic subject).

You should refrain from selecting broad topics, as the EE requires critical and reflective thinking skills of a specific topic. However, note that overly focused topics often require specific data that may not be available. Examples of strong and weak topics are shown in the table below.

Unit	Relatively broad topic	Relatively focused topic
Microeconomics	What is the market structure of the bottled water industry in Country A?	What market structure best characterizes the bottled drinking water industry in Town B of Country A?
Macroeconomics*	How do the changes in monetary policy affect consumption in Country X?	To what extent have the central bank's interest rate cuts affected the realty sector in City Y?
The global economy*	How has the fall in the exchange rate of the Indian rupee affected the Indian economy?	To what extent has the recent fall in the Indian rupee affected exports of generic drugs in the state of New Delhi?

* Topics from Macroeconomics may be chosen for the EE, but it is essential that the research question is narrowed to a sensible and manageable focus on a particular part of the economy rather than the economy as a whole. Similarly, for topics related to The global economy, it is vital that the research question should relate to a particular aspect of development and/or a limited geographical area.

TOP TIP!

In order to succeed in the economics EE, it is vital that you can explain the purpose and worthiness of your chosen topic and research question. Ask yourself why it would be valuable to have an answer to your chosen research question.

TOP TIP!

Many essays start with the phrase 'To what extent ...' – while this is fine, as it prompts students to consider the relative importance of different points or perspectives, far too many candidates fail to answer the question. In order to do so, candidates must attempt to develop an argument in response to the actual research question and to examine alternative viewpoints. Also, note that the conclusion, which must include substantiated justifications, can consist of only one of the following:

- to a large extent
- to some extent
- to a small extent.

■ Framing a research question

Once you have selected a suitable topic, the next step is to frame a succinct and well-focused research question that can be answered within the scope of the EE. It is important that the topic and research question reflect a strong emphasis on economics, and that they do not become directed towards another academic subject. Research questions that do not allow a systematic and meaningful investigation using relevant economic theory usually do not lend themselves well to critical and reflective analysis. Hence, the treatment of the materials researched must reflect an approach that uses economic theory and, therefore, meets the subject requirements of the economics EE.

Here are some examples of suitable research questions (at the time of writing, all were suitable within the five-year rule for the IB Economics EE):

- 1 To what extent has Leicester City Football Club's (LCFC) championship success facilitated economic growth in the city?
- 2 How effective has Moscow Metro's pricing strategy been in reducing the negative externalities of private car use in Moscow, Russia?
- 3 How successful has the price ceiling on drug-eluting stents been in improving economic well-being in the South Mumbai precinct?
- 4 How successful has the government's implementation of higher indirect taxes on tobacco products been in reducing consumption of cigarettes in New South Wales?
- 5 To what extent has demonetization affected the residential real estate sector in the Mumbai Metropolitan Region?
- 6 To what extent can the removal of the sugar tax in Denmark be justified on economic grounds?
- 7 What is the most significant factor that affects consumer demand for cabbages in Busan, South Korea?
- 8 To what extent has the rise in tariffs affected the demand for vodka from Tallinn, Estonia?
- 9 To what extent does Chartwells Compass Group (school catering service providers) operate in a contestable market in Sevenoaks, UK?
- 10 To what extent has the imposition of the Double Stamp Duty impacted the housing market in Shek Kip Mei, Hong Kong?

■ Collecting data

You are encouraged to carry out original research on any topic within the syllabus (Microeconomics, Macroeconomics or The global economy). This means the title or research question has not already been answered in secondary sources.

An EE focusing on an aspect of microeconomics could be carried out using primary research in the form of surveys, questionnaires or interviews (face-to-face, virtual or electronic) conducted with university lecturers, journalists, government officials and/or relevant business people. These must, however, be directly relevant to the research question. Note also that there is no formal requirement to use any primary research in the EE.

TOP TIP!

It is a formal requirement to include secondary research in the EE. If you choose to also include primary research, ensure that this:

- adds value to the topic and research question
- complements the secondary research.

If primary research is undertaken, it must be approached with academic rigour. For example, questionnaires based on speculative, circumstantial responses do not tend to generate appropriate or meaningful data, so should not be used.

By contrast, EE topics from Macroeconomics and The global economy need more secondary research in the form of drawing data from published academic papers, government publications, statistical databases, newspaper/magazine/online articles and historical records. An EE based on one of these two sections of the syllabus requires relevant secondary data and information to be collected and used in a clear way to help develop reasoned arguments in response to the research question. Therefore, it is important to avoid presenting a general summary of the secondary sources.

TOP TIP!

It is a formal requirement to include the use of secondary data in the EE. Where appropriate, you may choose to supplement this with the use of primary research, although there is no formal requirement to do so.

TOP TIP!

Given the need to collect secondary data for the economics EE, it is not appropriate to write an essay based on future economic events. For example, *'What will be the likely economic impacts of the 2026 FIFA World Cup on co-host countries of Canada, Mexico and the USA?'* Such an essay is not suitable for the EE as it is largely speculative and unsupported by actual empirical evidence – and far too challenging to complete in 4,000 words!

■ Analysis and evaluation

Effective analysis occurs if the information gathered is examined using relevant economic theories. Throughout the EE, you should integrate relevant economic theories, models and tools with the evidence obtained from your research. For instance, you can demonstrate critical analysis and evaluation through sound assessment and judgement of the extent to which the relevant economic theory is useful in the context of the topic and in answering your research question.

You should avoid making knowledge claims using economic theories, models and tools if you are unable to make meaningful links to the chosen topic and research question. The most effective essays apply supporting data or evidence throughout in order to address the specific research question.

Note that Criterion C of the assessment criteria requires you to specifically include conclusions to individual points of analysis. This means you need to include interim conclusions in your work, not only as a separate section at the end of the essay.

You should also demonstrate critical awareness of the validity of the information collected and used. For example, theories and diagrams that are included in the essay should always be supported by critical and reflective thinking. When formulating your arguments, you should also demonstrate an awareness and understanding of the limitations of your own research and the shortcomings of the economic theories and assumptions of the models that have been used. To do this, you can critically assess the extent to which economic theory may or may not explain the realities of the topic being researched. Also, note that critical awareness of secondary information (and primary if used) is required to be demonstrated throughout the essay, not only towards to the end.

TOP TIP!

Analysis is not simply a description of the research findings or results but application of the analysis to the research question.

TOP TIP!

All knowledge claims and arguments presented in the essay must be backed by reasoning and/or evidence from your research.


TOP TIP!

Students can demonstrate their skills of evaluation by judging the extent to which a theory and its **assumptions** are valid or useful in answering the research question.

TOP TIP!

You can use the same acronym **CLASPS** as with the IA to demonstrate the skills of evaluation:

- Conclusion
- Long run versus short run implications
- Assumptions
- Strengths or shortcomings
- Priorities
- Stakeholder perspectives.



■ **Figure 41.1** Clasps are used to hold things together

■ **Structure of the extended essay**

While there is no formal requirement for the structure of the EE, the following format tends to work well for most students.

Item	What to include
Title page	<ul style="list-style-type: none">● the title of the essay● the research question (which must be phrased as a question)● the subject for which the essay is registered● word count declaration.
Contents page	<ul style="list-style-type: none">● A contents page must be provided at the beginning of the extended essay.● All pages should be numbered appropriately and accurately.
Introduction	<p>The introduction should make clear to the reader the following:</p> <ul style="list-style-type: none">● the focus of the essay● the scope of the research (including an indication of the sources used)● an insight into the line(s) of argument taken.

Item	What to include
Body of the essay – research, analysis, discussion and evaluation	<ul style="list-style-type: none"> ● The main task is writing the body of the essay, which should be presented in the form of well-reasoned arguments, using fit-for-purpose paragraphs. ● You have the flexibility to use appropriate sub-headings to indicate the methodology (research), analysis, discussion and evaluation.
Conclusion	<ul style="list-style-type: none"> ● The summative conclusion should include what has been achieved, including recognition of any limitations plus any unanswered questions (those that have not been resolved). ● It must also answer the specific research question.
References and bibliography	<ul style="list-style-type: none"> ● All sources must be cited/referenced and recorded in a full bibliography. ● You need to use a chosen style of academic referencing, which should be used throughout the essay. ● Citation and referencing are important in the EE for academic integrity reasons.

TOP TIP!

Conclusions must not be based on hypothetical cases, such as hypothetical changes in the price of a product (to calculate PED or PES). Such an approach is superficial and unreliable.

■ Reflections and the extended essay

Being reflective is one of the IB learner profile attributes and it has become a formal part of the assessment criteria for the EE. Reflections are explicitly assessed using the Reflections on Planning and Progress Form (RPPF), which is worth 6 marks. This is a significant number of marks (almost 18 per cent), which can make the difference between two grades in the final assessment.

Reflection requires us to consider what has happened in order to move forward. For the EE, you should consider the ideas and information collected, including your research about specific economic theories and models, in order to formulate your own understanding and interpretation of the topic and research question. For instance, you could reflect on the strengths and weaknesses of your experiences in order to further your own learning and personal academic growth.



■ **Figure 41.2** Reflections require us to look back in order to move forward

As part of the EE requirements, you will need to meet with your supervisor to carry out **three** compulsory reflection sessions. Each of these reflection sessions should last between 20 and 30 minutes and must be recorded on the official RPPF. This form will need to be electronically signed (initialled) after each meeting, and eventually uploaded on IBIS at the very end of the EE process.

TOP TIP!

While reflections are a relatively new feature of the EE process, they are similar to the reflections that you undertake in Theory of Knowledge (TOK) and Creativity, Activity and Service (CAS). The ability to reflect is a transferable skill.

The focus of reflection in the EE is on the overall process. For each section of the RPPF, consider the following areas for reflection:

- The challenges, setbacks and obstacles you faced – how did you tackle these and what did you learn in the process?
- The IB learner profile – which of these applied to you, and how?
- Your learning experiences – what did you learn and did any new perspectives emerge during the process?

There is a maximum of 500 words for all three reflections. These must be written in your own words and relate only to your own learning journey in this process. This is what the IB calls 'student voice'. You should write your reflective comments on the RPPF as soon as possible after each reflection meeting with your supervisor because these thoughts will still be fresh in your mind. Also, you must not go back and change or update your reflections at a later date – the EE examiner wants to know what you were thinking at that particular moment when each reflection was completed.

TOP TIP!

Be fully prepared for each reflection session in order to make the best use of your time and that of your supervisor. Ensure you have read any suggested materials, for example, and be prepared to answer questions based on this. Being unprepared for a formal reflection meeting can raise doubts about a candidate's level of engagement and the authenticity of the work.

TOP TIP!

The *viva voce* is described by the IB as a '*celebration*' of the completion of the EE. So, you should celebrate your achievement when the time comes! Your final reflection should therefore include details of how you have really grown and benefited from the whole experience.

■ The assessment criteria

Criterion	Marks	Broad descriptors	Description
A: Focus and method	6	<ul style="list-style-type: none"> ● Topic ● Research question ● Methodology 	This criterion focuses on the topic, the research question and the methodology. It assesses the explanation of the focus of the research (which includes your chosen topic and the research question), how the research will be undertaken, and how the focus is maintained throughout the essay.
B: Knowledge and understanding	6	<ul style="list-style-type: none"> ● Context ● Subject-specific terminologies and concepts 	This criterion assesses the extent to which the research relates to the subject area used to explore the research question. It also assesses the way in which your economics knowledge and understanding are demonstrated through the use of appropriate economics terminology and concepts.
C: Critical thinking	12	<ul style="list-style-type: none"> ● Research ● Analysis ● Discussion and evaluation 	This criterion assesses the extent to which critical thinking skills have been used to analyse and evaluate the research you have undertaken.
D: Presentation	4	<ul style="list-style-type: none"> ● Structure ● Layout 	This criterion assesses the extent to which the presentation of your essay follows the standard format expected for academic writing and the extent to which it aids effective communication.
E: Engagement	6	<ul style="list-style-type: none"> ● Process ● Research focus 	This criterion assesses your level of engagement with the research process and completion of the EE. It is applied by the examiner at the end of the assessment of the essay, after considering the RPPF, which includes your three mandatory reflections and your supervisor's feedback comments.

TOP TIP!

For Criterion D (presentation), you can use the **PEEL** framework to ensure you write fit-for-purpose paragraphs throughout the essay:

- **P**oint
- **E**xample(s)
- **E**xplanation
- **L**ink (to the research question).

While most students do not struggle to achieve 3 or 4 marks for Criterion D, please note the following common pitfalls (for which marks are deducted) from EE examiners:

- missing elements (cover page, table of contents, page numbers, bibliography)
- a contents page with no page numbers
- page numbers not matching the table of contents
- illegible diagrams
- excessive use of irrelevant photographs that broke up the flow of the essay
- poorly organized bibliographies
- mixed-up fonts.

■ Final reminders and points to consider

- The EE should relate to economic information, policies, outcomes or events that are no more than five years old.
- Essays should not be based on future economic events.
- Your essay should be presented as a formal piece of sustained academic writing, completed within the word limit (4,000 words). Note that the content in this chapter is approximately 3,600 words.
- As an academic piece of work, all the resources used to complete the EE need to be properly cited and referenced.
- The essay must be accompanied by the RPPF document consisting of three compulsory reflections of no more than 500 words in total.
- You will be supported by a supervisor from your school as part of the EE process. The IB recommends three to five hours of supervision, which includes the three mandatory reflection sessions.
- Students should use the following recommended format in their essay:
 - ☐ size 11 or 12 font
 - ☐ Arial or Times New Roman font
 - ☐ 1.5 or double spacing
 - ☐ page numbering.
- The EE must be anonymized. This means you must not include your candidate number, school name or supervisor's name on the title page or anywhere else in the essay.
- Examiners are instructed not to read beyond the 4,000-word count limit (WCL). Going beyond the WCL is therefore self-penalizing. Also, note that issues of academic integrity may arise should a student exceed the WCL.

- The following items are not included in the official 4,000-word count:
 - ☐ contents page
 - ☐ maps
 - ☐ charts
 - ☐ diagrams
 - ☐ annotated illustrations
 - ☐ tables
 - ☐ equations, formulae and calculations
 - ☐ citations/references (whether parenthetical, numbered, footnotes or endnotes)
 - ☐ bibliography (works cited)
 - ☐ the reflections on planning and progress form (RPPF).
- Remember that it is not necessary to use or include any primary research. Some students choose to include pages of pie charts or similar, used to summarize their survey results. Such an approach is rarely appropriate for an EE. At the same time, questionnaires or interviews based on speculative and circumstantial responses rarely generate appropriate data, so must not be used.
- Diagrams should not be included if there is no evidence to support their relevance to the research question (remember to apply the PEEL framework to construct your paragraphs in the essay).
- Data gathered for an economics EE should not be used to fulfil the requirements of the economics IA. This is usually not appropriate to the demands of the task and could be considered as ‘double-dipping’, a form of academic malpractice.

For more information about the EE, please refer to *Extended Essay for the IB Diploma: Skills for Success*, published by Hodder Education (ISBN: 9781510415126) <https://www.hoddereducation.co.uk/subjects/general/products/16-19/extended-essay-for-the-ib-diploma>

All the best for the completion of your extended essay!

Glossary

Abnormal profit refers to profit that is greater than normal profit, meaning that a firm is earning more profit than in its next best alternative.

Absolute advantage occurs when a country can produce more of a good or service than another country using the same amount of resources (or being able to produce the same amount of a good or service using fewer resources).

Absolute poverty exists when people are deprived of basic human needs for survival. Often these people are living below the international poverty line or their country's own national poverty line.

Actual growth refers to the current, rather than potential, level of real GDP in the economy. It is represented by a movement towards the country's PPC as more resources are employed.

Administrative barriers are the application of bureaucratic standards and regulations imposed on foreign firms in order to protect domestic firms and consumers.

An **ad valorem** tax imposes a percentage tax on the value of a good or service. Examples include property taxes, tariffs (taxes on imports) and sales taxes.

Adverse selection is a form of opportunistic behaviour that refers to the undesired decisions or results that occur when buyers and sellers have access to asymmetric information.

Aggregate demand (AD) is the value of all goods and services demanded in the economy, per time period.

Aggregate supply (AS) is the total amount of output of goods and services that firms within an economy are willing and able to supply at a given time and at an overall price level.

Allocative efficiency is the socially optimal situation that occurs when resources are distributed in such a way that consumers and producers get the maximum possible benefit, that is, no one can be made better off without making someone else worse off.

Appreciation is a sustained increase in the value of one currency in terms of another under a floating exchange rate system.

Asymmetric information refers to missing, unbalanced or incorrect information that exists when one economic agent has more information than the other in an economic transaction.

Austerity measures refer to cutbacks in fiscal spending in order to repay national debt. This is achieved by reducing government spending and raising taxation.

Average costs (AC) are the unit costs of production, that is, the cost of producing one unit of output.

The **average rate of tax** refers to the amount of tax paid compared to the amount of income earned, that is, the total tax paid divided by the total income for an individual, or $T \div Y$.

Average revenue (AR) refers to the price received from the sale of a good or service.

The **balance of payments** is a financial record of a country's transactions with the rest of the world, usually over one year. It includes the country's trade in goods and services with other countries.

The **balance of trade** (or **trade balance**) is the difference between a country's total export earnings and its total import expenditure on both goods and services.

The **basic economic problem** refers to how best to allocate the economy's scarce resources to best meet its unlimited wants. It is about addressing the fundamental questions in economics, that is, what, how and for whom production should take place.

Basic economic questions refer to how best to allocate an economy's finite resources in order to meet its unlimited wants. The fundamental questions are *what*, *how* and *for whom* production should take place.

Behavioural economics is an aspect of economics that examines the role of cognitive psychology to gain a better understanding of decision-making in economics. It challenges the assumption that economic agents are able to make rational choices.

Benign deflation is generally unharmful deflation as the economy is able to produce more without an increase in the general price level (shown by an outwards shift of the SRAS curve).

The **Better Life Index** (BLI) is an alternative to national income as a measure of well-being. The BLI is based on 11 topics identified by the OECD to be essential in terms of material living conditions and quality of life.

A **boom** is a phase in the business cycle when the level of economic activity rises, caused by an increase in aggregate demand.

A **budget deficit** exists when the value of government spending exceeds government revenue per time period, that is, $G > T$.

The **business cycle** (or **trade cycle**) is a model that illustrates the fluctuations in a country's level of economic activity over time. It determines the long-term trend of economic growth in the economy.

Capital (or **physical capital**) is a factor of production and refers to non-natural resources used to further the production process. Examples include machinery, equipment, tools, and physical buildings such as factories.

The **capital account** records the different forms of capital inflows and outflows of a country during a given time period, namely capital transfers and transactions in non-produced, non-financial assets.

A **cartel** is an agreement between oligopolistic firms in the same industry to collude in fixing prices or to restrict the level of output in the market, thereby effectively acting as a monopolist.

The **central bank** is the monetary authority responsible for regulating the country's financial system and implementing monetary policy, including regulation of commercial banks and the country's money supply.

Ceteris paribus is a Latin phrase meaning 'all other factors remaining constant' or 'all else unchanged'. It is used by economists to explain cause and effects of economic variables.

A **choice architect** is an individual or organization who organizes the context in which people make decisions, based on the simplified design of different choices being presented to them.

Choice architecture refers to the way choices are presented to members of society and how different designs affect the choices made. Effective choice architecture helps people avoid making poor choices and irrational decisions.

Choices refer to the competing options and decisions faced by individuals, households, firms, and governments.

A **circular economy** describes an economic system in which raw materials, components and other resources are used sustainably to generate output.

The **circular flow of income** model is a macroeconomic tool used to explain how activity and national income are determined.

Classical economists were members of the main economic school of thought during the eighteenth and nineteenth centuries, which focused on self-regulating markets to allocate resources efficiently.

A **closed economy** is part of the circular flow of income model comprising only domestic economic decision makers, that is, households, firms and the government.

Collective self-governance refers to voluntary communal actions to tackle the problems of negative externalities and the problems associated with the exploitation of common pool resources.

Collusion is where two or more firms act together to reduce competition in a market.

Command and control (CAC) are a type of intervention which refer to the direct rules or laws governing an activity or industry, stating what is permitted and what is illegal.

Common access resources (or **common pool resources**) are rivalrous but non-excludable goods or services, that is, they are not owned by a private individual or firm; for example, public beaches, country parks and commercial fishing.

A **common market** (or **single market**) is the most integrated trading bloc, consisting of a customs union that allows the free movement of factors of production between member countries.

Community surplus (also known as **social surplus**) is the sum of consumer and producer surplus at a given market price and output, thereby maximizing economic welfare.

Comparative advantage exists when a country can produce a given amount of output at a lower opportunity cost than another country, that is, it gives up fewer resources than other countries in producing a certain good or service.

Competitive supply means the output of one product prevents or limits the production of alternative products, owing to competing resources.

Complements (or **complementary product**) are products that are jointly demanded; for example, torch and batteries, or printers and ink cartridges.

A **composite indicator** is a statistical method that combines single indicators of economic development into a combined index such as the Human Development Index.

The **concentration ratio** measures the degree of market power in an industry by adding the combined market share of the largest few firms.

Conflicting macroeconomic objectives means that it is not always possible for a government to simultaneously achieve all of its macroeconomic objectives owing to potential tradeoffs.

Constant prices refer to the values of real GDP and real GNI as they have been adjusted for inflation over time.

The **consumer price index** (CPI) is a weighted index used to calculate the change in prices of a representative basket of goods and services consumed by the average household. It is used to measure the inflation rate in the economy.

Consumer surplus refers to the gain or benefit to buyers who can purchase a product at a price lower than what they are willing and able to pay for the product. It is calculated using the formula $CS = WTP - P$.

A **contraction** in the quantity supplied is caused by a lower price for the product, thus causing a downward movement along the supply curve.

Contractionary fiscal policy is used to reduce the level of economic activity by decreasing government spending and/or raising taxes to limit consumption (C) and investment (I).

Contractionary monetary policy aims to slow down economic activity usually by increasing interest rates to cut consumption and investment expenditure in the economy.

Corporate social responsibility (CSR) is about businesses considering the impact of their operations on the society as a whole welfare in a positive and ethical way.

Costs are the expenses incurred in the production of goods and services. They are comprised of fixed and variable costs.

Cost-push inflation refers to inflation caused by higher costs of production, such as higher labour costs or skyrocketing rents, thereby forcing up average prices.

Credit refers to items in a country's balance of payments that lead to an inflow of currency (for example, from export sales).

Credit creation refers to the process by which commercial banks create money from deposits from savers and use these funds as loans to borrowers.

Credit items are payments received from consumers, firms and institutions or governments located outside of the economy.

Crowding out occurs when increased government borrowing causes interest rates to rise, thereby reducing private sector investment expenditure.

The **current account** is a record of all trade flows (exports and imports of goods and services), income flows and income transfers between countries by individuals, firms and governments.

The **current account balance** is the sum total of all items listed in the current account. The balance can be in deficit (when $M > X$), in surplus ($X > M$) or zero ($X = M$).

A **customs union** consists of member countries in a trading bloc, which engage in free trade with each other but impose a common external tariff when trading with non-member states.

Debit refers to items in a country's balance of payments that lead to an outflow of currency (for example, from import expenditure).

Debit items are payments made to consumers, firms and institutions or governments located outside of the economy.

The **debt to GDP ratio** shows a country's national debt as a percentage of its GDP (national income).

A **decrease in demand** refers to a leftwards shift of the entire demand curve for a product, caused by unfavourable changes in non-price factors that affect demand.

A **deficit** on an account exists when the total value of debit items exceeds the total value of credit items, over a given period of time.

Deflation refers to the persistent fall in the average price level in an economy over time, that is, lower prices in general.

A **deflationary gap** (also called a **recessionary gap** or **negative output gap**) occurs when macroeconomic equilibrium is below the full employment equilibrium, that is, AD is insufficient to create full employment.

Demand refers to the willingness and ability of customers to buy a good or service at given prices over a period of time.

Demand curve is an illustration of the inverse relationship between the prices of a good or service and the quantities that consumers are willing and able to buy for a given time period, *ceteris paribus*.

Demand deficient unemployment (or **cyclical unemployment**) is a type or cause of unemployment, resulting from a lack of aggregate demand in the economy affecting most, if not all, industries.

The **demand for money** refers to the desire of households and firms to hold money (rather than saving it) in order to finance spending and investment.

Demand-pull inflation is inflation caused by higher levels of spending or aggregate demand (AD) in the economy, which drives up the general price level.

A **demand-side policy** refers to any government strategy or plan to influence the level of aggregate demand, such as reducing interest rates to reduce the costs of borrowing money to finance household consumption expenditure (C) and corporate investments (I).

Demerit goods are products that create negative spillover effects (or negative externalities) to others in society from their production and consumption, that is, $MSC > MPC$.

Depreciation is a sustained decrease in the value of one currency in terms of another under a floating exchange rate system.

Devaluation occurs when the price of a currency operating in a fixed exchange rate system is officially and deliberately lowered.

Direct provision occurs when the government directly provides or supplies certain goods and services deemed to be in the best interest of the public.

Direct tax is a levy or charge imposed on personal income and wealth, or on the profits of businesses. It is imposed directly on the individual or firm liable to pay the tax.

Disinflation refers to a fall in the rate of inflation, that is, prices are still rising, but at a slower pace, rather than a fall in the average price level.

Economic decision makers are the economic agents or entities who interact with each other for the purpose of production and consumption. They comprise of households, firms, and governments.

Economic development is a multidimensional notion that entails a sustained rise in standards of living for the average person in society. Indicators include higher levels of income, greater access to goods and services, better education and healthcare, and reductions in gender inequalities.

Economic growth is a key macroeconomic objective that measures the increase in the level of national output over a specified period of time. It can be measured by the annual percentage change in the economy's real gross domestic product (GDP).

Economic integration is the process of countries becoming more interdependent and economically unified.

Economic methodology refers to the processes, practices and principles of economics by using models, theories and assumptions that underlie economic reasoning.

Economic profit (or abnormal profit) exists when total revenue exceeds the economic costs of a transaction, thus creating incentives for firms to produce.

Economies of scale are lower average costs brought about by an increase in the long run scale of production.

Elasticity of demand is a measure of how the quantity demanded of a product changes due to a change in a factor that affects demand, such a change in the price of the product or a change in real disposable income.

Embargoes are a form of administrative barrier that involves the use of bans on trade with a certain country, often due to political and/or economic disputes.

Empirical evidence refers to first-hand data and information acquired by observation or experimentation of certain behaviours and patterns.

Employment refers to the use of factors of production in the production process. The term is usually applied to the use of labour resources.

Enterprise (or **entrepreneurship**) is a factor of production referring to the ability of particular individuals with the skills to manage and organize the other three factors of production (land, labour, and capital) and their willingness to take risks.

Equality is the concept concerned with everyone being equal and should have equal recognition. It is about social fairness and collectivism. Equality means there is parity in income (earnings) between individuals, that is, everyone is paid or receives the same so no inequalities exist.

Equity is the concept concerned with economic fairness in the distribution of resources. Equity means economic fairness, such as those with higher levels of qualifications, skills and experience being paid more, that is, the existence of justified inequalities.

Exchange rates are the value of one currency expressed in terms of another currency.

Expansion in the quantity supplied is caused by a higher price for the product, thus causing an upward movement along the supply curve.

Expansionary fiscal policy is the use of increased government spending and/or reduced taxes in order to stimulate the level of economic activity.

Expansionary monetary policy aims to boost economic activity by expanding the money supply, achieved mainly by lowering interest rates, to stimulate aggregate demand, thereby closing a deflationary gap.

External benefits are the benefits enjoyed by a third party not directly involved in an economic transaction.

External costs are expenses incurred by third parties in an economic transaction for which no compensation is paid.

External economies of scale are lower average costs brought about by an increase in the long-run scale of production of the industry.

Externalities (or **spillover effects**) are the external costs or benefits of an economic transaction, causing the market to fail to achieve the social optimum level of production or consumption.

Factor incomes (or **income**) refers to the flow of earnings from using factors of production to produce goods and provide services. They are comprised of *wages* and *salaries* (the reward for labour), *interest* (the reward for ownership and use of capital), and *profit* (the reward for entrepreneurship).

Factors of production are the four categories of resources that are required to produce any good or service, namely land, labour, capital and enterprise.

The **financial account** is a record of the transactions that relate to the change in ownership of assets, that is, cross-border investments. These include foreign direct investment, portfolio investment, reserve assets and official borrowing.

Fiscal policy is the use of taxation and government expenditure policies to influence the level of economic activity and macroeconomic objectives.

A **fixed exchange rate** system exists when the central bank (or monetary authority) buys and sells foreign currencies to ensure the value of its currency stays at a single, predetermined rate.

Free goods are resources or products that are unlimited in supply, so their output has no opportunity cost. Examples include desert sand, air, rainwater and seawater.

The **free market economy** is an economic system that relies on the market forces of demand and supply to allocate scarce resources in the economy.

A **free trade area** (FTA) is a type of trading bloc between member states that agree to trade freely with each other but can impose separate trade restrictions with non-member countries.

The **full employment** level of output exists at the point where unemployment is at its natural rate, so there will be no unemployment due to a lack of aggregate demand.

Game theory is an economic model that attempts to explain the nature of strategic interdependence in oligopolistic markets by considering the actions of competitors when making a decision, based on probable outcomes.

A **GDP deflator** (or **price deflator**) is used to convert GDP (or GNI) at current prices to GDP (or GNI) at constant prices by removing the impact of inflation on the value of national income.

The **gender gap** refers to the difference between women and men in terms of social, political, intellectual, cultural and economic activities, attitudes and opportunities.

The **Gini coefficient** (or **Gini index**) is a statistical tool that measures income or wealth inequality, with the outcome ranging from 0 (complete equality) to 1 (total inequality).

Goods are physical (tangible) items made in the production process. Examples include furniture, cars, toothpaste and stationery.

Government refers to the establishment with the administrative authority to oversee, regulate, and control a country or territorial state.

Government debt (or **national debt**) refers to the sum of all accumulated government budget deficits from previous years, that is, it is the total amount of money owed by the government to its domestic and foreign creditors.

Gross domestic product (GDP) measures the total monetary value of all goods and services produced within a country, per time period (usually one year). It measures GDP in terms of current prices, that is, the nominal prices at the time of measurement, instead of taking any changes in the price level into account.

The **Happiness Index** is an alternative to national income as a measure of well-being, by considering how information technology, governance and social norms influence communities and their level of well-being.

The **Happy Planet Index** (HPI) is a measure of sustainable human well-being, that is, how individuals and countries are able to achieve long, happy and sustainable lives.

Herfindahl–Hirschman Index is a measure of market concentration that gives greater weighting to the market power of larger firms by squaring the value of their market share.

Human capital is the accumulation of skills, knowledge and experience of the workforce, viewed in terms of their value or cost.

A **hypothesis** is an assumption, notion or educated guess made before research has been conducted.

The **incentives function** is an aspect of the price mechanism important in allocating resources. As price changes, the mechanism provides an incentive for producers and consumers to change their behaviour in order to maximize their benefits.

Income is a flow concept referring to the money a person receives from the production process; for example, wages and salaries.

The **income effect** is one of three factors accounting for the downward sloping demand curve. As the price of a product falls, consumers' real incomes increase so they are able to buy more goods and services at lower prices.

Income elastic demand occurs when the percentage change in the quantity demanded of a product is greater than the percentage change in consumers' real income, that is, $PED > 1$. This tends to apply to the demand for services and luxury products.

Income elasticity of demand (YED) measures the degree of responsiveness of quantity demanded following a change in the real income of consumers.

Income inelastic demand occurs when the percentage change in the quantity demanded of a product is less than the percentage change in consumers' real income, that is, $PED < 1$. This applies to the demand for necessities.

An **increase in demand** refers to a rightwards shift of the entire demand curve for a product, caused by favourable changes in non-price factors that affect demand.

An **indirect tax** is a payment taken indirectly from the consumer's income, through their expenditure on goods and services.

Inflation is the sustained (continual) increase in the general (average) price level, over time. It is commonly measured by using a consumer price index (CPI).

An **inflationary gap** (or **positive output gap**) exists when an economy's actual real GDP exceeds the potential output at the full employment level of national output.

Injections (J) put money into the circular flow of the income. They comprise government spending (G), export earnings (X) and investment expenditure (I).

The **interest rate** is the price of money. Expressed as a percentage measure, interest rates represent the cost of borrowing money or the return for savers.

Internal economies of scale are lower average costs brought about by an increase in the long-run scale of production of the individual firm.

An **international poverty line** is the minimum threshold level of income that a person must earn or have access to in order to meet the basic needs necessary for human survival.

International trade is the exchange of capital, goods and services across nation states. It involves the sale of exports (goods and services sold to overseas buyers) and imports (foreign goods and services bought by domestic households and firms).

Intervention is a key concept referring to any kind of involvement of the government in economic activity. The purpose is to improve efficiency and economic well-being.

Interventionist supply-side policies are the deliberate attempts by a government to influence aggregate supply and the productive capacity of the economy.

The **J-curve effect** is an economic model that shows the impact on a country's balance of trade following a currency depreciation, namely that the trade balance worsens before it gets better.

Joint supply refers to the supply of a product that results in the output of at least one by-product.

Keynesian school of economic thought refers to an interventionist approach to macroeconomic policy by advocating increased government expenditure and lower taxes to stimulate aggregate demand.

The **Keynesian multiplier** shows that any increase in the value of injections into the circular flow of an economy results in a proportionately larger increase in aggregate demand.

Labour is one of the four factors of production and refers to the physical and intellectual efforts of workers to the production process.

The **labour force** refers to people of working age who are in employment (including the self-employed) plus those who are seeking work, that is, those who are available for work at current real wage rates.

Labour market policies (or **labour market reforms**) are government policies designed to create greater flexibility and efficiency in the labour market.

A **labour union** (or **trade union**) is an organization that aims to protect the interests of its worker members, that is, the terms and conditions of employment, such as workers' pay and benefits.

Land (or **natural capital**) is one of the four factors of production and refers to the natural resources of the economy.

Land rights refer to the ability of individuals to obtain, use and hold land at their will.

The **law of demand** refers to the inverse relationship between the price of a good or service and its quantity demanded, that is, the quantity demanded falls as price rises, while the quantity demanded rises if prices fall.

The **law of diminishing marginal returns** states that by employing additional variable factors of production, the marginal returns will eventually decline. This is due to at least one of the factors of production being fixed in the short run.

The **law of diminishing marginal utility** states that as individuals consume more of a product, the satisfaction gained from each additional unit of consumption declines. Hence, customers would only purchase more units at lower prices.

The **law of supply** is a general rule in economics stating there is a positive relationship between the quantity supplied of a product and its price, *ceteris paribus*.

Leakages or **withdrawals** (W) take money out of the circular flow of the income. They comprise savings (S), taxation (T) and imports (M), that is, $W = S + T + M$.

Legislation (in the context of asymmetric information) refers to laws stipulated by the government as a response to tackling imperfect information in markets, such as requiring health warnings on cigarette packets.

Logic refers to rationality and reasoning, rather than emotions or beliefs, in explaining economic phenomena and policymaking.

The **long run Phillips curve** (LRPC) shows that in the long run, there is only a single rate of unemployment (the natural rate) that is consistent with a stable inflation rate. Hence, the LRPC is vertical, that is, there is no trade-off between low inflation and low unemployment.

The **Lorenz curve** is a graphical representation of income distribution in a country, based on the income or wealth accounted for by each decile or quintile of the population.

Macroeconomic equilibrium exists when aggregate demand is equal to aggregate supply in the economy, that is, $AD = AS$.

Malign deflation is generally harmful deflation due to a decline in aggregate demand for goods and services in the economy (shown by an inwards shift of the AD curve, and hence, a fall in real GDP).

A **managed exchange rate** is a system where the government or central monetary authority intervenes periodically in the foreign exchange market to influence the exchange rate, when deemed necessary to maintain certainty and confidence in the economy.

Marginal cost (MC) is the cost of producing an extra unit of output. It is calculated by dividing the change in total costs (ΔTC) by the change in the level of output (ΔQ), that is, $MC = \Delta TC / \Delta Q$.

Marginal revenue (MR) is the extra revenue received from the sale of an extra unit of output, that is, $MR = \Delta TR \div \Delta Q$.

The **marginal tax rate / marginal rate of tax** (MTR) refers to the percentage of direct tax paid on the last dollar of an individual's income, i.e. the change in tax rate paid from a given change in income or $\Delta T \div \Delta Y$.

Marginal utility refers to the benefit or satisfaction gained from consuming an additional unit of a good or service.

A **market** is any place where transactions take place between buyers and sellers. For example, shares are traded in a stock market and currencies are traded on the foreign exchange market.

Market-based supply-side policies focus on freeing up markets and improving market incentives in order to increase aggregate supply, thereby improving incentives to increase investments and productivity and incentives to work.

Market concentration measures the extent to which sales revenue in an industry is dominated by one or more of the largest firms.

The **market demand curve** is the sum of all individual demand for a product, that is, the aggregate of individual demand at each price level.

Market disequilibrium occurs when the quantity demanded for a product is either higher or lower than the quantity supplied in the market, that is, there is either a shortage (excess demand) or surplus (excess supply).

Market equilibrium occurs when the quantity demanded for a product is equal to the quantity supplied of the product, that is, there are no shortages or surpluses.

Market failure refers to any situation when the price mechanism (the free market forces of demand and supply) allocates scarce resources in an inefficient way.

Market power refers to the ability of a firm to manipulate the price of a product, usually above the perfectly competitive level.

Market share refers to a firm's portion of the total value of sales revenue in a particular industry. It is calculated by using the formula: $(\text{Firm's total sales revenue} / \text{Industry's total sales revenue}) \times 100$.

Market structure refers to the categorization of firms in a particular industry, based on their level of market power; for example, the number and size of firms in the industry, the nature of barriers to entry, and the degree or intensity of competition.

Market supply curve illustrates the horizontal sum of all individual supply curves for a product of all producers in the market at given prices.

The **Marshall-Lerner condition** states that a devaluation or depreciation of the currency will work in rectifying a balance of trade deficit only if the sum of the price elasticity of demand for exports and imports is greater than 1 (that is, price elastic).

Marxism is an approach to macroeconomic policy that focuses on meeting the needs and values of the masses, rather than for the privilege of a minority of capitalists.

Merit goods are products that create positive externalities when they are produced or consumed, that is, $MSB > MPB$.

The **Millennium Development Goals** (MDGs) of the United Nations committed member countries to combat poverty, hunger, disease, illiteracy, environmental degradation and discrimination against women. The MDGs were scheduled to be achieved by 2015.

The **Minimum Income Standard** (MIS) measures the lowest amount of income needed for what members of the public in the country think is acceptable to be able to live in a socially appropriate way.

A **mixed economy** is an economic system that features aspects of both a planned and market economic system, with some resources being owned and controlled by private individuals and firms with others being owned and controlled by the government.

A **model** is a hypothesis that has been repeatedly tested and proven or rejected and can be used to explain the real world.

Monetarism is the belief that monetary policy is the most powerful and effective macroeconomic stabilization policy to influence the overall level of economic activity.

Money supply is the amount of money in circulation within the economy at a particular point in time, as determined by the central bank. The money supply comprises legal tender (banknotes and coins), loans, credit, bank deposits and central bank reserves.

Monopolistic competition is a market structure where many firms exist, but each firm has only a small degree of market power as they produce differentiated products.

A **monopoly** is a market structure where there is a single supplier of a particular good or service, thus having the power to influence the market supply and price.

A **moral hazard** is a situation where a party protected from risk (due to having superior information) behaves differently than if they were fully exposed to the risk. This potentially imposes costs on the party that has inferior information.

Movement along the demand curve is caused by price changes only. A fall in price causes quantity demanded to expand while an increase in price causes quantity demanded to contract.

The **Multidimensional Poverty Index** (MPI) is a composite measure of poverty that identifies numerous deficiencies of individuals and households based on three dimensions or indicators of poverty – health, education and standards of living.

The **national poverty line** is the level of income below which a person in the country cannot meet their basic minimum needs in terms of shelter, nutritional level and clothing.

Natural monopoly occurs when only one firm can operate in a market profitably owing to natural barriers to entry and economies of scale.

The **natural rate of unemployment** (NRU) is the level of unemployment at the full employment equilibrium level of national output, comprising frictional, seasonal and structural unemployment.

Needs are the goods and services deemed to be essential for human survival. Examples include nutritional food, clean water, clothing, shelter (housing), and access to healthcare and education.

Negative economic growth occurs when the level of economic activity declines, that is, there is a fall in real GDP. This is associated with a recession in the business cycle.

Negative externalities (or external costs) are expenses incurred by third parties in an economic transaction for which no compensation is paid.

A **negative multiplier effect** occurs when an initial leakage from the circular flow of income leads to a greater than proportionate fall in final real GDP.

The **new classical counter revolution** (NCCR) favoured supply-side macroeconomic policies over interventionist arguments, such as privatization of state-owned enterprises and deregulation of markets.

Nominal economic growth is the annual rate of change in the monetary value of GDP. This is expressed in terms of current prices, that is, the money value of GDP at the current point in time.

The **nominal interest rate** is the actual rate that is agreed between a bank and the customer, that is, it is the rate borrowers pay on their loans or the return savers receive on their cash deposits.

Nominal GDP measures national output using current market prices, that is, the value of GDP at the time of measurement. It measures the monetary value (or face value) of all goods and services produced within a country for a given period of time, usually a year.

Non-collusive oligopoly exists where large firms in the industry act strategically by competing independently, taking into account the likely or possible actions of rival firms.

Non-price determinants of demand are the various factors other than the price of the good or service that affect the demand for the product.

Non-price determinants of supply are the various factors other than the price of a good or service that affect the supply of the product.

Normal profit exists when a firm earns the same amount of profit as it would from its next best alternative option. The firm would therefore remain in its current market as it would not gain more profit from operating in any other market.

Normative economics considers people's varying opinions and beliefs about what should be (or what ought to be). Such claims are subjective and expressed as value judgements.

Nudge theory is the practice of influencing the choices that people make. Nudges are created by choice architects using small prompts or tweaks to alter social and economic behaviour, but without taking away the power for people to choose.

Oligopoly is a market structure in which a few large firms dominate the industry, with each firm having a high degree of market power.

The **open economy** is part of the circular flow of income model comprising domestic and foreign economic decision makers, that is, households, firms, the government and the foreign sector (which accounts for exports and imports).

Opportunistic behaviour means that one party can take advantage of the opportunity that the other party lacks information, resulting in adverse selection or moral hazard.

Opportunity cost refers to costs of an economic decision measured in terms of the best alternative choice forgone. Owing to scarcity, there is always an opportunity cost when making an economic decision (with the exception of free goods).

An **overvalued currency** occurs when the value of a currency is above its equilibrium value in the long run.

The **peak** of the business cycle occurs when economic activity is at its highest level.

Perfect competition is a market structure where there is intensive competition, with no individual firm being large enough to have any market power to influence the price or quantity traded.

A **Pigouvian tax** is a government levy on the sale of certain goods and services used in response to negative externalities and CPRs by taxing buyers and sellers of the product so they pay for the negative externalities of production and consumption.

A **planned economy** is an economic system where the government (or public sector) allocates scarce resources.

Positive economics is the study of economics that is provable, that is, factual statements about the economy or statements of 'what is' rather than 'what ought to be'.

Positive externalities (or **external benefits**) are the benefits enjoyed by a third party not directly involved in an economic transaction.

Potential output refers to the possible level of real GDP of an economy, as shown on its production possibility curve, if all resources are used efficiently. It is a long run phenomenon represented by an outwards shift of the PPC.

Poverty is the condition of an individual, household, community or country being extremely poor, that is, not being able to meet their basic human needs.

The **poverty trap** (or **poverty cycle**) is a vicious cycle of poverty and deprivation causing even greater poverty, from one generation to the next.

A **preferential trade agreement** (PTA) is a trade treaty between two or more countries, giving special or favourable terms and conditions of trade to member countries.

A **price ceiling** (also known as a **maximum price**) occurs when the government sets a price below the market equilibrium price to encourage output and consumption.

Price competition is the use of pricing strategies to compete in an industry.

Price controls are government regulations establishing a maximum or minimum price to be charged for certain goods and services.

Price elastic describes demand for or supply of a product that is relatively responsive to changes in the product's price.

Price elastic demand describes demand for a product that is relatively responsive to changes in the product's price, usually due to close substitutes being widely available. In this case, the value of PED > 1.

Price elastic supply occurs when firms can quite easily increase the quantity supplied if there is an increase in the price of the product. As PES > 1, the change in price leads to a greater percentage change in quantity supplied.

Price elasticity of demand (PED) measures the degree of responsiveness of quantity demanded for a product following a change in its own price. The formula to calculate this is $PED = \% \Delta QD \div \% \Delta P$.

Price elasticity of supply (PES) is a measure of how responsive the supply of a product is to a change in the price of the product. It is calculated using the formula $PES = \% \Delta Qs \div \% \Delta P$.

A **price floor** (also known as a **minimum price**) is the imposition of a price guarantee set above the market equilibrium price to encourage supply of a certain good or service.

Price inelastic describes demand for or supply of a product that is relatively unresponsive to changes in the product's price.

Price inelastic demand describes demand for a product that is relatively unresponsive to changes in the product's price, mainly due to the lack of close substitutes being available. In this case, the value of PED < 1.

A **price maker** (or **price setter**) is a single or dominant firm that has significant market power enabling it to manipulate its prices as it has significant control over market supply.

The **price mechanism** refers to the interactions between buyers and sellers (the forces of demand and supply) in order to allocate resources, thereby determining production and consumption choices.

Price rigidity refers to the tendency of prices to remain unchanged in non-collusive oligopoly.

Price takers are firms that have no market power and are therefore unable to influence their price.

The **private sector** is the sector of the economy where private firms and individuals produce goods and services.

Producer surplus refers to the gain or benefit to firms who receive a price that is higher than what they are willing and able to supply.

The **production possibility curve** (PPC) or production possibility frontier (PPF) is a diagrammatic representation of the maximum combination of two products that a country can produce, given the efficient use of all its resources, at any moment in time.

Profit maximization is assumed to be the key goal of firms operating in the private sector. The largest positive difference between total revenue and total costs occurs at the output level where MC = MR.

A **progressive tax** charges a higher percentage tax as an individual's income rises, that is, those who earn more pay a greater proportion of their income in tax.

Protection (or **trade protectionism**) is the use of barriers to trade to safeguard an economy from excessive international trade and foreign competition.

Provision of information means the government provides additional information about goods and services, or requires firms to do so, in order to help buyers make more informed decisions.

Public goods are collective consumption goods provided by the government that are non-rivalrous and non-excludable.

The **public sector** is the sector of the economy where the government produces or supplies certain goods and services.

Purchasing power parity (PPP) refers to the exchange rate that enables residents to purchase a common basket of goods and services in different countries.

Quotas are quantitative limits on the importation of a good into a country.

Rational consumer choice refers to the decision-making process based on the assumption that people make choices that result in the optimal level of benefits (utility). It is the basis of most introductory and mainstream economic theories.

The **rationing function** is an aspect of the price mechanism that serves to limit or preserve resources, that is, higher prices lower the quantity demanded thereby helping to preserve (ration) the good or service.

Real economic growth adjusts nominal economic growth to take account of inflation (that is, changes in the general price level as measured by changes in consumer prices).

Real GDP is the value of an economy's national output that has been adjusted for inflation in order to reflect the true value of goods and services produced during a given year.

The **real interest** rate accounts for the impact of inflation on the return to savers and the cost of debts to borrowers. The formula is: Real interest rate = Nominal interest rate – Inflation rate.

Real wage unemployment occurs when labour market imperfections maintain a higher real wage rate than the equilibrium real wage rate needed to restore macroeconomic equilibrium.

A **recession** is a phase in the business cycle that occurs when there is a fall in gross domestic product (GDP) for two consecutive quarters.

A **recovery** occurs when GDP starts to rise after the trough in the business cycle, eventually leading to economic growth.

Refutation is the act of a statement or theory being proved to be wrong or false by the empirical evidence.

Regulation (in the context of asymmetric information) refers to the act of monitoring and controlling the activity of firms, such as advertising information required to be legal, decent, honest and truthful.

Relative poverty in a country refers to individuals and households who are unable to earn the minimum amount of income needed for them to maintain the average standard of living in the community or country.

Revaluation occurs when the price of a currency operating in a fixed exchange rate system is officially and deliberately increased.

Satisficing is a business objective that aims for a satisfactory or adequate level of profit. This is because profit maximization is likely to incur too many sacrifices.

The **savings ratio** is the amount of money people keep aside for future use expressed as a percentage of total disposable income.

Say's law states that the ability to purchase a product depends on the ability to produce or supply, thereby generating income. Essentially, this means that supply can create its own demand.

Scarcity refers to the finite resources (limited in supply) of an economy relative to the unlimited needs and wants of individuals and societies.

Screening is a strategy undertaken by parties with less or inferior information to tackle the problem of adverse selection, with the aim of maximizing their own return or utility.

Services are intangible (non-physical) products such as haircuts, bus journeys, telephone calls, and internet access.

Shifts of the demand or supply curves occur when there is a change in any non-price factor that affects the demand for or supply of a product. The entire curve shifts to the left if there are unfavourable changes affecting demand or supply, and vice versa.

The **short run aggregate supply** (SRAS) curve shows the total planned national output at different price levels, *ceteris paribus*.

The **short run Phillips curve** (SRPC) shows a potential tradeoff between pursuing low unemployment and low inflation as macroeconomic objectives.

Signalling is a strategy undertaken by parties with more or superior information to tackle the problem of adverse selection with the aim of maximizing their own return or utility.

The **signalling function** is an aspect of the price mechanism that signifies to producers and consumers where resources are required (in markets where prices increase) and where they are not (in markets where prices fall).

A **single indicator** refers to a statistical measure of economic development that uses one particular gauge, such as literacy rates, income per capita or life expectancy.

A **slump** (or **trough**) occurs at the bottom of a recession in the business cycle when aggregate demand remains low. Social surplus is the sum of producer and consumer surplus in a specific market. It is used to demonstrate efficiency in a market.

Social surplus is the sum of producer and consumer surplus in a specific market. It is used to demonstrate efficiency in a market.

A **specific tax** (also known as a **per unit tax**) imposes a fixed amount of tax on each product that is sold; for example, taxes on cigarettes, air passenger tax, electronic road pricing and highway tolls.

Subsidies are a form of financial assistance from the government to domestic firms by lowering their costs of production in order to help the firms compete against foreign imports. Subsidies encourage output, reduce the price of certain products, or keep down the cost of living for the domestic country's citizens.

Substitute products are products in competitive demand, that is, they can be used instead of each other, such as Coca-Cola or Pepsi and tea or coffee.

The **substitution effect** states that as the price of a product falls, more people can buy the product, so choose this over rival products, that is, it causes consumers to replace higher priced products with lower priced ones. Supply is the amount of a good or service that firms are willing and able to provide at any particular price, per time period.

The **supply of money** refers to the total amount of money circulating in the economy at any point in time.

Supply-side policies are the long-term government strategies used to increase the productive capacity of the economy by improving the quality and/or quantity of factors of production.

A **surplus** is created when the supply of a product exceeds its demand because the price is set higher than the market equilibrium price. A surplus on an account exists when the total value of credit items exceeds the total value of debit items, over a given period of time.

Sustainability is a key concept referring to an economy achieving the economic goals that allow an increase in living standards without jeopardizing the needs and wants of future generations.

Sustainable development is economic development that meets the needs of the present generations without compromising the ability of future generations to meet their own needs.

The **Sustainable Development Goals** (SDGs) of the United Nations Development Programme consist of 17 international development targets aimed at achieving peace and prosperity by all UN member countries by 2030.

Tariffs are a specific tax on imported goods and services.

A **theory** is a broad generalization used to explain situations or scenarios already supported by economic evidence and data from economic models.

Total costs (TC) are the aggregate amount of production costs spent on the output of a given good or service. It is the sum of variable and fixed costs.

Total revenue (TR) is the overall amount of money received by a firm from selling its output.

Tradable permits (or **cap and trade schemes**) are government-regulated emissions trading schemes that limit pollution in an industry to a more socially efficient level. Efficient firms can sell any excess permits that they do not need to use.

Trade creation occurs when trade shifts from higher-cost producers outside of a trading bloc to lower-cost producers within the bloc, due to the removal of trade barriers.

Trade protection (or **protectionism**) is the use of barriers to trade to safeguard an economy from excessive international trade and foreign competition.

A **trading bloc** is a group of countries that agree to economic integration and freer international trade by reducing or removing trade barriers with one other.

An **undervalued currency** occurs when the value of a currency is below its equilibrium value in the long run.

Unemployment refers to the non-use of a factor of production, such as labour, that is, people who are registered as being available and willing to work at the going real wage rate but who cannot find employment.

The **unemployment rate** measures the percentage of the labour force that is unemployed. It is calculated by the formula: $(\text{Total unemployed} / \text{Total labour force}) \times 100$.

Utility theory is a model that assumes rational economic agents are incentivized to maximize the level of satisfaction (or utility) from economic activities.

Value judgements are the beliefs of individuals and societies about what is right or wrong, or good or bad.

Wants are human desires, that is, things people would like to have or have more of. Wants are infinite (unlimited) as it is human nature to continually want more things.

The **World Trade Organization** (WTO) is a global organization that exists to promote trade liberalization, to oversee multilateral trade agreements, and to resolve trade disputes between member states.

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